DOCUMENT RESUME

ED 228 411 CE 035 493

AUTHOR Gray, Kenney E.; And Others
TITLE Vocational Teaching Areas in Need of Additional Personnel.
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C.
PUB DATE Jan 79
CONTRACT 300-78-0032
NOTE 311p.; For a related document see CE 035 492.
PUB TYPE Reports - Research/Technical (143) -- Statistical Data (110)

EDRS PRICE MF01/PC13 Plus Postage.
DESCRIPTORS *Employment Projections; Employment Statistics; National Surveys; Postsecondary Education; Research Methodology; *Research Problems; Secondary Education; State Surveys; Statistical Analysis; Statistical Studies; *Teacher Employment; Teacher Shortage; *Teacher Supply and Demand; *Trend Analysis; Vocational Education; *Vocational Education Teachers

ABSTRACT

Projecting demand for vocational education teachers for a 5-year period has many methodological problems. For example, how does one define the "need for additional personnel" or determine the difference in demand for and supply of teachers? The demand figure changes drastically depending on how it is measured, while the supply changes depending on such factors as certification requirements. Demand also hinges on available funding. After consideration of these methodological problems, this study summarized a number of studies and used a panel of experts to devise a model that could be used to project the 5-year demand for vocational teachers (1977-82). Needs for teachers nationally by program areas, and at the state level by program areas as well as by total needs were determined. National data indicated that the number of additional teachers needed could be as high as 110,216 by fiscal year 1979 and as high as 200,481 by 1981. On the state level, all states showed a need for teachers for 1979 except Florida, Georgia, Maine, New Hampshire, and Wyoming. In 1981, only Florida and Wyoming were estimated not to have any needs for teachers. All states had needs for teachers in one or more program areas. (The majority of this report consists of statistical methodology and tables of projected teacher needs by individual states and by program areas.) (KC)

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VOCATIONAL TEACHING AREAS IN NEED OF ADDITIONAL PERSONNEL

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January 1979

CE 035 493

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FOREWORD

Teachers are a major component of the vocational education delivery system. Planning and policy development to provide for the number of teachers required is critical to the future success of vocational education programs. Data on future needs for teachers are necessary to these planning and policy efforts. This report on Vocational Teaching Areas in Need of Additional Personnel provides such data on estimated needs for teachers by fiscal years 1979 and 1981.

This research report was developed by the National Center, under its contract with the Bureau of Occupational and Adult Education, U. S. Office of Education, to assist in national planning and policy development. The report also should be useful to state divisions of vocational education, university teacher education institutions, national and state advisory councils for vocational education, others engaged in planning and policy development in vocational education, and persons considering careers as vocational teachers.

The National Center expresses its appreciation to the many individuals who contributed to this report. Special thanks are extended to Kenney E. Gray, project director, who prepared this report in collaboration with William Zeigler, graduate research associate, the National Center staff and William D. Woolf, then Colorado state director of vocational education; and to Edward J. Morrison, program director, Information for Planning and Policy Development, the National Center staff, who provided guidance to the conduct of this research. A special indebtedness is acknowledged to the panel of consultants for their assistance in planning the project and providing counsel throughout: Max L. Carey, Bureau of Labor Statistics, U. S. Department of Labor; Maude P. Goldston, Virginia State Department of Education; Helen B. Lipscomb, Florida Department of Education; A Stafford Metz, National Center for Education Statistics; Carl J. Schaefer, Rutgers University; and Jeffrey A. Windom, Ohio State Occupational Information Coordinating Committee. Dewey A. Adams of the National Center, and Max Carey, Maude Goldston, and Jeffrey Windom of the consultant panel, made valuable contributions in their critical reviews of the manuscript prior to final revision.

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INTRODUCTION

The United States' publicly supported system of vocational education includes instructional programs in many agencies including secondary school districts, area vocational schools, community and junior colleges and other postsecondary institutions. Total enrollments exceeded 15 million in 155 USOE occupational program titles in 1976. The total number of teachers was approximately 310,000.[1] Program enrollments and total number of teachers increased rapidly over the last decade.

The level of needs for teachers should be anticipated early, so that an appropriate staff of qualified teachers can be assured for future instructional programs. The Education Amendments of 1976 (P.L. 94-482) address this matter by requiring that the U.S. Commissioner of Education for each fiscal year, "publish a listing of the areas of teaching in vocational education which are presently in need of additional personnel and of areas which will have need of additional personnel in the future...".[2]

The purpose of this report is to provide information so that the listing of teaching areas which need additional personnel can be produced as called for in the Education Amendments of 1976. The report addresses the need for vocational education teachers, as intended by the legislation, and does not address needs for such other personnel as counselors, administrators, planners, evaluators, curriculum specialists or pre-vocational teachers.

This simply stated and obviously important purpose was extraordinarily difficult to achieve because of major conceptual, methodological, and data problems. These problems are discussed briefly in the next section. Then recent related studies are reviewed and the research strategy outlined, the methods and procedures are described, findings are presented and interpreted, and conclusions and recommendations are presented.

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[1] Vocational and Technical Education, Selected Statistical Tables, Fiscal Year 1976. U.S. Office of Education, Bureau of Occupational and Adult Education, Washington, D.C.

[2] Education Amendments of 1976, P.L. 94-482, Section 172 (C) (7), 94th Congress of the United States, October 12, 1976.

THE PROBLEM

The basic conceptual problem of this study centers on the definition of "need for additional personnel." The discrepancy concept of need, the difference in demand for and supply of teachers, is widely discussed but difficult to apply and use. For example, the number of teachers in demand depends on the point in time at which the need is estimated. It depends, too, on the methods chosen for delivering instruction and on many administrative and pedagogical decisions affecting class size, instructional schedules, program offerings, and curriculum content. Similarly, the number of teachers properly considered in "supply" is influenced by the time for which the supply is estimated and by choices among instructional system, administrative, and pedagogical alternatives. The supply is drastically altered by modest changes in certification requirements which define who is to be counted.

Another approach is to define the need for teachers as the number of unfilled teaching positions. This definition also is difficult to use and imprecise because of adjustments that administrators make, often on short notice, to cope with unanticipated vacancies. Consequently, few positions remain unfilled for long. Responses to such situations often result in enlistment of teachers with temporary certifications, increased use of self-instructional techniques and materials, adjustments in the size of classes, and other techniques.

Any concept of need for teachers implies an estimate of the future. Since any response to need requires some time, the response must be appropriate to the need at some future time if it is to be effective. Thus, the concept of need must include anticipated teacher turnover rates. These rates are believed to vary across program areas, levels of education, and states, and are influenced by such factors as changes in credentialing requirements, advancement possibilities within education, fluctuations in the economy and job market situation, and age distribution of teachers as related to death, retirement, temporary absences from teaching due to illness or opportunities for advanced study.

Methodologically and conceptually, the establishment of needs for vocational teaching personnel may be viewed as a special case of estimating and forecasting the general labor force, which the Bureau of Labor Statistics has worked at with only

modest success. A fundamental problem is that statements of need are statements about a future time. Needs are estimated from present data and information using many assumptions about the influence of many factors, their interactions, and their future trends. For vocational teaching personnel needs, few of these assumptions have been identified and no model has been developed and tested for combining relevant information and data into estimates of needs. Development and evaluation of such a model are major methodological problems.

The data available for analysis of needs for vocational education personnel present several difficulties. Foremost are the variations among local and state agencies with respect to program definitions, counting practices, and data systems' effectiveness. These variations produce problems of data quality, comparability, and completeness in national aggregates and thus require careful analysis and interpretation.

Considering these problems, recent research studies were reviewed relative to definitions of needs for teachers and methods used to identify these needs.

RELATED RESEARCH

Teacher Shortages in Vocational Education

In a study completed just three months after the present research began, the National Center for Research in Vocational Education surveyed the State Education Agencies (SEAs) by mail to determine teacher shortage areas for the 1977-78 school year.[3] The term "shortage," defined as "an instructional position for which operating funds are available, but which is not filled," proved to be highly troublesome to the study. Follow-up telephone calls and a meeting with SEA representatives revealed that respondents' interpretations of the definition were inconsistent. Some states counted positions as unfilled even if occupied by teachers without full credentials. Others claimed to have no shortages whatsoever.

Of the fifty-six SEAs (territories included), forty-seven responded to the survey. The data are summarized in Table 1. The data indicate that shortages did not occur in all program areas of each state reporting a shortage. Twenty-nine states reported needs in the trade and industry program area (2,083 teachers needed), the largest number of states reporting needs for any program area. Twenty to twenty-nine states reported shortages for each program area except technical which had shortages of 193 teachers in only fifteen states.

Project Baseline simply asked state directors of vocational education if teacher shortages existed in their states and, if so, how severe (none, some, moderate, great) they were and in what program (service) areas they occurred. No definition of "shortage" was reported. Baseline findings are presented in Table 2. The number of states indicating no shortage increased from six in 1973-74 to thirteen in 1974-75. The number of states indicating at least some shortages in 1973-74 decreased from forty-three in 1973-74 to twenty-nine states in 1974-75. During the same two years the number with great need remained nearly

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[3]Koble, Daniel E. Jr., and J. Ronald Phillips. A Study to Determine the Anticipated Areas of Vocational Education Teacher Shortages. Columbus, Ohio: The Ohio State University, The National Center for Research in Vocational Education, April, 1978.

TABLE 1

Teacher Shortage in 1977-78 by Program Areas and Number of States Reporting Shortages

Program Areas	Total Shortages Reported	Number of States Reporting Shortages
Agriculture	419	27
Distributive Education	277	26
Health	835	20
Occupational Home Economics	757	22
Office	689	24
Technical	193	15
Trade and Industry	2,083	29

Source: Koble, Daniel E. Jr., and J. Ronald Phillips. A Study to Determine the Anticipated Areas of Vocational Education Teacher Shortages. Columbus, Ohio: The Ohio State University, The National Center for Research in Vocational Education, April, 1978.

unchanged. Overall, reported shortages became less severe between 1973-74 and 1974-75.

In the fall of 1977, the National Center for Education Statistics surveyed a national sample of 550 local school districts to determine areas of current teacher shortages and emerging fields and specialties. The fast-response mail survey defined shortages as "position openings for which teachers were sought but were unable to be hired because qualified candidates were unavailable." Discrete response categories were provided. Respondents were asked to list the number of teacher shortages and to indicate whether they had openings (filled and unfilled).

TABLE 2

The Number of States Reporting Teacher Shortages in 1973-74 and in 1974-75: by Extent of Shortage, Program Level, and Program Area

	Number of States	
Extent of Shortage	1973-74	1974-75
None	6	13
Some	20	11
Moderate	14	10
Great	9	8
Program Level		
Secondary	35	27
Post secondary	15	11
Adult	10	4
Program Area		
Agriculture	25	19
Distributive Education	17	10
Health Occupations	18	11
Home Economics	2	7
Office Occupations	7	9
Technical	-	7
Trade and Industry	28	18

Source: Lee, Arthur M. Learning a Living Across the Nation, Volume 5, Part I. Flagstaff, Arizona: Northern Arizona University, November 1976. p. 40-41.

The survey also asked respondents to list "the Instructional fields...for which demand for (teaching) personnel is likely to emerge or grow in your district within the next five years," a no response category was provided. NCES developed national estimates, which are summarized in Table 3. Note that the data for emerging fields and position openings represent an estimate of districts, while the data for teacher shortages represent estimates of actual vacancies. Also note that the sample was restricted to secondary-level institutions.

TABLE 3

Teacher Shortages, Number of Districts with Teacher Openings and Number of Districts Expecting Growth in Teacher Demand

PROGRAM AREA	Teacher Shortages	Districts with Teacher Openings (Filled & Unfilled)	Districts Expecting Growth in Teacher Demand
Agriculture	45	1,024	600
Distributive Education	13	805	-
Health	7	347	-
Occupational Home Economics	8	827	-
Office	2	518	-
Technical	32	387	200
Trade & Industry	104	816	100
All Vocational Education	-	-	500

Source: National Center for Education Statistics, Unpublished data.

Each year the Agricultural Education Division of the American Vocational Association (AVA) sponsors a study of supply and demand for teachers of vocational agriculture. Data are assembled from teacher training institutions and state departments of education. Table 4 presents the findings of the 1977 study which indicate that 221 teachers were needed but not available and that 90 departments of vocational agriculture would not operate in 1977-78 because of the teacher shortage. Further, there were 567 teachers with temporary or emergency certificates.

The AVA study reported that the teacher turnover rate for fiscal year 1977 was 10.3 percent, which contributed heavily to the current shortage. Based on 12,694 positions for 1977, this meant that 1,308 new teachers were needed just to replace those who left the profession. Since only 1,063 new graduates entered teaching during the year, an additional 235 were needed just to maintain current staff levels. The teacher turnover rate has fluctuated between 9 percent and 12 percent for the last thirteen years.

The National Education Association annually collects data concerning current teacher supply and demand from state departments of education and teacher training institutions.[4] The study does not deal with future needs.

Turnover Rates for Teachers

An examination of all these studies supported the concept of changes in enrollment and teacher turnover as central components in defining needs for teachers. Considering how critical teacher turnover rates are in determining the need for teachers, an examination was made of recent research on turnover rates and its application to vocational education teachers.

The U.S. Office of Education in its Projections of Teacher Supply and Demand to 1980-81 for all elementary and secondary teachers used a range of turnover rates as follows:[5] High, 8 percent; medium, 6 percent; and low, 4.8 percent. These rates

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[4] Graybeal, William S. "Teacher Supply and Demand in Public Schools, 1976". National Education Association Research memo.

[5] Projections of Teacher Supply and Demand to 1980-81. Commissioner's Report on the Education Professions 1974-75. Washington, D.C.: U.S. Printing Office 1977.

TABLE 4

Number of Teaching Positions and the Need for Teachers in Vocational Agriculture in the United States in 1977-78

Item	Number
1. Total positions as of 6/30/77	12,694*[a]
2. New graduates entering teaching during 1976-77 school year	1,063[b]
3. New positions added during 1976-77 school year (net total)	305[c]
4. Number of newly qualified teachers still available 9/1/77	58[d]
5. Teachers needed but unavailable 9/1/77	221[e]
6. Teachers with temporary or emergency certificates	567[f]
7. Departments which will not operate in 1977-78 because of the teacher shortage	90[g]

*Does not include 1,509 positions in technical institutions and community colleges (an increase of 126 from last year).

[a]An increase of 208 from last year; a 587 increase from 1975.

[b]An increase of 20 over the 1976 figure; an increase of 64 from 1975.

[c]A decrease of 89 from last year.

[d]A decrease of 1 from the 1976 figure; up 35 from 1975.

[e]Ten more than in 1976; up 132 from 1975.

[f]An increase of 13 from last year; a 48 decrease from 1975.

[g]A decrease of 38 from last year; up 12 from 1975.

Source: Craig, David G. A National Study of the Supply and Demand for Teachers of Vocational Agriculture in 1977. Knoxville, TN: University of Tennessee College of Education, March 1978.

were based on the research of Mason and Bain,[6] Metz and Fleischman,[7] and Tomorrow's Manpower Needs, Volume IV.[8] Turnover was defined as the "number of currently employed teachers leaving the profession." This definition does not take into consideration mobility across teaching positions, levels, or fields; temporary withdrawals; or advancement to school positions other than teaching.

The Projections of Teacher Supply and Demand to 1980-81 did not provide data on the turnover rates of vocational education teachers. Data on these rates should consider differences in preparation of teachers in vocational education versus nonvocational fields, and the implications for teacher turnover. Nonvocational teachers in the elementary and secondary schools are prepared for teaching through four or more years of college training including observation of teaching and supervised practice teaching. College teacher training experiences help prospective teachers try teaching prior to employment to decide whether they want a career in teaching. College preparation for teaching is not provided to a large number of vocational education teachers who are recruited directly from business or industry and do not have teaching experience. This lack of college preparation suggests that turnover may be higher for vocational teachers than for nonvocational teachers.[9]

Further, vocational education teachers have a unique identity with related occupational fields of employment outside of

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[6] Mason, Ward S., and Robert K. Bain. Teacher Turnover in the Public Schools 1957-58. U.S. Dept. of Health, Education, and Welfare, Office of Education Circular 608. Washington, D.C.: U.S. Government Printing Office. 1959.

[7] Metz, A. Stafford, and Howard L. Fleischman. Teacher Turnover in Public Schools Fall 1968 to Fall 1969. U.S. Dept. of Health, Education, and Welfare, Office of Education. Washington, D.C.: U.S. Government Printing Office. 1974.

[8] Tomorrow's Manpower Needs, Vol. IV, 1974. U.S. Bureau of Labor Statistics. Washington, D.C.: U.S. Government Printing Office. 1974.

[9] Rates of turnover in the labor force are generally reported to be higher for younger workers (age in the 20's) than older workers (age 30 to 60). Data on age of Vocational Teachers were not available for use in this study. Future research on needs for Teachers should consider age distribution of teachers as a factor of teacher turnover.

education. This identity comes from the work experience they have had in an occupational area prior to teaching. Vocational teachers usually maintain communication linkages and personal relationships with persons in occupational areas through craft advisory committees, involvement with business and industry through cooperative education, by seeking job placement for students after training is completed, or by informal and formal efforts to keep current technically in their occupational field.

These conditions suggest a lack of a first career commitment to the teaching profession for a large percentage of vocational teachers. It is likely that vocational education teachers leave teaching for other employment more frequently than teachers from academic fields at the elementary and secondary levels of education. Therefore, the turnover rate for all elementary and secondary teachers was not used for the study but was helpful as a reference point or benchmark for identifying turnover rates for vocational education teachers.

Craig, in A Study of Supply and Demand for Vocational Agriculture Teachers sponsored by AVA and cited earlier, reported a 10.3 percent turnover rate for secondary vocational agriculture teachers for fiscal year 1977. This turnover rate is specific for agriculture and supports the belief that vocational teacher turnover is likely to be higher than the turnover rate range of 4.6 percent to 8 percent reported by USOE in Projections of Teacher supply and Demand to 1980-81.

The Craig study did not identify a turnover rate for vocational education generally nor for program areas within vocational education except for agriculture. Consequently, a limited study was conducted on turnover rates for vocational education to increase the accuracy of future needs estimates for teachers. This study of turnover rates and the results are described in the following section along with other methods and procedures used to produce estimates.

METHODS AND PROCEDURES

The studies discussed in the preceding section were summarized and reviewed with a panel of experts, and efforts were initiated to develop a model which could produce estimates of future needs. The reviewing panel consisted of university teacher educators in vocational education, state vocational education personnel development coordinators, and personnel from the Department of Labor who were familiar with techniques used in projecting labor market demands. The panel concurred with project staff that no useful purpose would be served by collecting new data and that existing data, including annual reports and state plans submitted to USOE, should be used. The annual reports contained data on enrollments and number of teachers by program, and the five-year (1977-82) state plans contained projected enrollment data.

Definition of Need for Teachers

A definition of need for teachers and a model for producing estimates was agreed upon in consultation with staff of the Bureau of Occupational and Adult Education, U.S. Office of Education; the Vocational Education Data System Program of the National Center for Education Statistics; and the Division of Occupational Outlook, Bureau of Labor Statistics, Department of Labor. The definition of need for teachers which was developed is as follows:

> "The need for teachers for a particular year is equal to the number of teachers required beyond a previous year due to projected enrollment changes and annual teacher turnover."

Since the most recent fiscal year for which enrollment and teacher data had been reported by the U.S. Office of Education at the time of this research was fiscal year 1976, this was used as the base year for identifying additional needs for teachers nationally and by state. Further, the data on students and teachers for each vocational education program permitted a student-teacher ratio to be determined for each program in each state.

The state plan for the five-year period of 1977 to 1982 prepared by each state vocational education agency for operating its vocational education programs included projected enrollment for vocational education programs which were to receive federal reimbursement during the five-year period. Teachers required to staff the programs were not identified in the plans.

In further discussions, it was decided that the research

would address the need for teachers by fiscal years 1979 and 1981. Fiscal year 1979 offers opportunities to produce estimates of future needs and to evaluate the accuracy of and the methods used to produce the estimates within one year. Producing estimates for fiscal year 1981 enables somewhat longer term estimates to be made and provides an opportunity for evaluating and adjusting the estimates if improved methods are identified before fiscal year 1981.

A Model for Producing Estimates of Needs

To identify the number of teachers needed for each vocational education program by fiscal year 1979 and 1981, the student-teacher ratio reported by states for each of the programs was assumed to be the same as in fiscal year 1976. The projected student enrollment for a future year divided by the student-teacher ratio in fiscal year 1976, was accepted as a key basis for determining future needs. Further, it was recognized that the turnover of teachers which required replacements was a critical factor. Therefore the need for teachers would be expressed in terms of additional needs beyond the number of teachers in fiscal year 1976. This logic produced the model for deriving estimates of teacher needs for teachers expressed as follows:

Additional Teachers needed by 1979 =

$$\frac{\text{Projected Number of Students in 1979}}{\text{Student-Teacher Ratio in 1976}} - \text{Number of Teachers in 1976} + \text{Replacements required Due to Annual Turnover Rates}$$

And

Teachers needed by 1981 =

$$\frac{\text{Projected Number of Students in 1981}}{\text{Student-Teacher Ratio in 1976}} - \text{Number of Teachers in 1976} + \text{Replacements Required Due to Annual Turnover Rate}$$

Components of the Model were defined as follows:

(a) Projected Number of Students in 1979 is the projected number of students by vocational education program area or specific vocational education program recorded in the five-year state plan for the 1979 fiscal year for each state. The number is the

total projected enrollment of secondary, postsecondary and adult students at the six-digit (specific vocational education program) level. Whenever projected enrollment was made for a program area (two-digit) level and the enrollment for fiscal year 1976 was reported at the lower level of four- or six-digits for specific vocational education programs, it was assumed that the percentage of a two-digit program area enrollment occurring within a specific vocational education program in 1979 would be the same percentage as the reported enrollment within each specific program. This assumption permitted projected enrollment data at the two-digit program area level to be assigned on a percentage basis to four- or six-digit levels and for estimates of needs for teachers to be made at specific program (sometimes referred to as course) levels. Without this assumption many states would be limited to estimated needs for teachers in the eight program areas (two-digit levels) instead of the more detailed program level (four- or six-digit level).

(b) Student-Teacher Ratio in 1976 is determined by dividing the number of students by the total number of teachers reported in each program area in fiscal year 1976, across secondary, postsecondary, and adult levels of instruction. The assumption was made that the student-teacher ratio at the two-digit program area level within each state would be the same ratio in the four- and six-digit program level.

(c) Number of Teachers in 1976 is the total number of teachers reported by states to USOE for the two-digit program areas. The number of teachers by program area was apportioned across four- and six-digit programs consistent with the proportion of students in a program area reported within each specific program.

(d) Replacement Required Due to Annual Turnover Rates is the number of teachers who leave teaching positions annually and require a replacement compared to the total number of teachers for the year. The turnover rates used in this study were determined from a review of other research on teacher turnover. The factors influencing turnover and the rates identified are reported later in this report.

(e) Projected Number of Students in 1981 is the projected number of students by program area or specific program as recorded in the five-year state plan for the 1981 fiscal year. It was reached by using the same methods and assumptions as reported in the above discussion of projected number of students in 1979.

A Study of Vocational Teacher Turnover Rates

The model reflects that the accuracy of estimating future

needs for vocational education teachers depends in part on the ability to compute a turnover rate for teachers. Each year a proportion of all vocational teachers leave their employment and must be replaced if school programs are to be maintained. An examination was made of other research studies discussed in the previous section, which dealt with teacher turnover. As indicated in that examination, turnover rates for vocational education were inadequate and a limited study was conducted to clarify turnover rates to be used in this report. This study is reported here.

Definition of Turnover Rate

Turnover rate as used in this research was defined as the number of teachers who leave teaching annually divided by the total number of teachers for that year. The factors identified for teachers leaving included death, retirement and the following factors:

(a) Occupational Mobility - A teacher leaves vocational education teaching and enters another profession or occupation.

(b) Advancement - A teacher leaves vocational education teaching for another position in vocational education such as administrator, supervisor, coordinator, evaluator, or curriculum specialist.

(c) Geographic Mobility - A teacher assumes a teaching position in another state. (This factor affects states' status only.)

(d) Vocational Teaching Mobility - A teacher changes from one program of vocational education to another, e.g., floristry (04.0500) to ornamental horticulture (01.0500). (This creates a need while filling another need with the result being no net effect on national needs for teachers.)

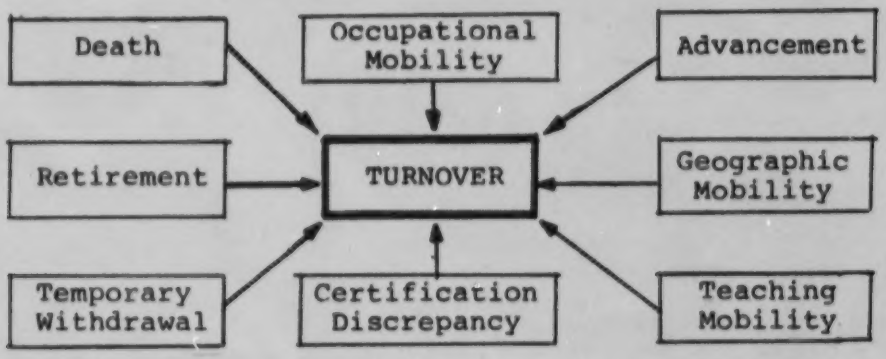
(e) Certification Discrepancy - A teacher is no longer qualified to teach due to alteration in certification requirements or a failure of the individual to meet required standards.

(f) Temporary Withdrawal - A teacher temporarily leaves the profession for reasons such as pregnancy, return to school, and sabbatical leaves.

The factors contributing to vocational education teacher turnover are shown in Figure 1.

FIGURE 1

FACTORS CONTRIBUTING TO VOCATIONAL EDUCATION TEACHER TURNOVER



The State Department of Vocational and Technical Education in Oklahoma reported four- to six-year averages for turnover by vocational program area in the report titled The Demand for and Supply of Vocational and Technical Teachers in Oklahoma 1978-1982.[11] The study defined turnover as the "number of teachers who die, retire, or otherwise leave teaching". The annual turnover rates ranged from 7 percent for trades and industry to 21 percent for distribution. Other program area turnover rates were agriculture, 9 percent; health, 19 percent; home economics, 18 percent; and office, 14 percent.

Because of the comprehensiveness of their data, Colorado, Pennsylvania, and Iowa were asked by telephone to identify the turnover rate for each program area in the state for 1977-78. The turnover rates ranged from 3 percent for the office program area to 20 percent for the agriculture program area. Average turnover rates across all program areas by state were: Iowa, 9 percent; Pennsylvania, 11 percent; and Colorado, 10 percent. The annual turnover rates for vocational education teachers by program areas reported above are presented in Table 5.

The four states (Colorado, Iowa, Pennsylvania, and Oklahoma), are not a statistical national sample, so their turnover alone was not sufficient to identify turnover rates for all states.

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[11] Morton, J.B., Charles O. Hopkins, and Gary Hatfield. The Demand for and Supply of Vocational and Technical Teachers in Oklahoma: 1978-1982. Stillwater, OK: State Department of Vocational and Technical Education, 1977. p.4.

However, the data were used in a comparative approach to identifying estimated national turnover rates along with national data on the turnover rate for vocational agriculture teachers.*

Identifying Estimated National Turnover Rates: 7 to 13 Percent

The only national data found in the literature on the turnover rates for vocational education teachers was the 10 percent rate for the agriculture program area as provided by A National Study of the Supply and Demand for Teachers of Vocational Agriculture in 1976. The median turnover for three vocational education program areas was higher for the four states (Colorado, Iowa, Pennsylvania and Oklahoma) than the national turnover rate for agriculture. These program areas and turnover rates were agriculture, 13 percent; distribution, 10.5 percent; and home economics, 13 percent. The median turnover for the four states was the same for health but was lower in program areas of office, 9 percent, and trade and industry, 8 percent. The median turnover by program area has a range of 8 percent to 13 percent.

The average turnover rates for program areas by the four states were lowest for the three program areas of office, 9 percent; technical, 8 percent; and trade and industry, 9 percent.

Utilizing national data on the turnover rate (10 percent) for agriculture teachers and the data from the four states, a range in turnover rates was identified. The 10 percent turnover rate, represented by the national study in agriculture, and the four state program area median rate was selected as the midpoint of the range to represent a medium rate of turnover.

The range of median rates for states above the medium rate were 11 percent for Pennsylvania and 14 percent for Oklahoma. Four program area medians which were above the medium rate were

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*A Minnesota study titled The Need for and Sources of Teachers in Vocationally Reimbursed Positions in Minnesota[12] reported turnover rates of two to five percent for all program areas except agriculture which was 12 percent. The study was for the period of 1966-67 through 1971-72 which was six to 12 years prior to this writing. Though limited to one state, the Minnesota data were not used in determining a national turnover rate because of the time that has elapsed since the study. However, the data suggest that teacher turnover rates seem to be increasing.

[12]Copa, George and Robert W. Korpi. The Need for and Sources of Teachers in Vocationally Reimbursed Positions in Minnesota. Minneapolis, MN: University of Minnesota, Minnesota Research Coordinating Unit for Vocational Education, July, 1974. p. 17.

TABLE 5

Summary of Research Studies on the Annual Turnover Rates of Vocational Education Teachers by Program Area

Program Area	Colorado	Iowa	Pennsylvania	Oklahoma	Median by Program Area for Four States	National Vocational Agriculture Teacher Study
	1977-78	1977-78	1977-78	1971-78		1976-77
Agriculture	20%	8%	17%	9%	13%	10%
Distribution	10	10	11	21	10.5	
Health	4	8	12	19	10	
Home Economics	-	10	13	18	13*	
Office	3	11	8	10	9	
Technical	-	-	8	-	8**	
Trade & Industry	11	9	8	7	8	
Median Turnover by State	10	9.5	11	14		
Median for All Programs					10	

* Represents data from only three states: Iowa, Pennsylvania, and Oklahoma.

** Represents the average for only Pennsylvania, not the four states, and was omitted from average for the four states.

agriculture, 13 percent; distribution, 10.5 percent; and home economics, 13 percent. These medians suggested 13 percent as a reasonable figure for the high rate of turnover.

The low rate for the range in turnover rates was not as clear to identify. Only one state, Iowa, had a median turnover rate, 9.5 percent, which was slightly below the medium. Three program area medians for the four states were below the medium point. These were technical and trade and industry, 8 percent, and office, 9 percent. Further, it was recognized that 6 to 8 percent is the top half of the turnover range for all elementary and secondary teachers reported by the U.S. Office of Education. Given these conditions and the 3 percent interval that exist in the medium (10 percent) and high (13 percent) rates selected, a low rate of 7 percent turnover seemed appropriate for this research. This range of 7 to 13 percent should be adequate to include the majority of the turnover rates by programs and states, though a few program turnover rates will likely be lower or higher than the range. This range is described in Table 6.

TABLE 6

Range of Estimated National Turnover Rates for Teachers of Vocational Education

Low	Medium	High
7 percent	10 percent	13 percent

Teaching Areas Included in Estimates of Need

The teaching areas for which future needs for teachers are estimated are the official U.S. Office of Education vocational education programs as included in the five-year (1977-82) state plans for vocational education. Conversely, if a vocational education program was not included in the projected enrollment by program within a state plan, it was not included in this study. State plans were obtained and analyzed for each state and the District of Columbia.

Each of the 155 vocational education programs is identified by a six-digit code. The programs are grouped into the following areas: agriculture, 01.0000; distribution, 04.0000; health, 07.0000; consumer and homemaking, 09.0100; home economics occupational preparation, 09.0200; office, 14.0000; technical, 16.0000; and trade and industry, 17.0000. Program titles and codes are specific to an occupation or small group of occupations,

e.g., ornamental horticulture, 01.0500; machine shop, 17.2302.*

Limiting the scope of the study to programs included in a state plan excludes the needs for teachers in vocational programs which are not reimbursed with federal vocational education funds (i.e., selected business and office, home economics, and industrial arts); pre-vocational career education programs in which the instructional content is of a general occupational nature designed to orient students to and explore the world of work; private secondary and postsecondary vocational schools; special institutions (i.e., schools for handicapped and disabled, most schools at correctional facilities for incarcerated persons); and Comprehensive Employment and Training Act programs.

Assembling and Analyzing Data From State Reports and State Plans

A copy of each state's annual report for fiscal year 1976 was obtained from the Bureau of Occupational and Adult Education, U.S. Office of Education. The reports included the student enrollment and number of teachers in each state by vocational education program. These figures served as the base-year data against which comparisons were made regarding future needs. Further, this information helped to establish student-teacher ratios by program, which was a key factor in the model used to produce estimates of needs for teachers.

Each state's five-year (1977-82) plan was obtained from the U.S. Office of Education or directly from the state to obtain future enrollment data. The plans included projections of enrollment for each program area; and most plans also had projections of enrollment by specific program. When projections of enrollment in a state plan were by program area (e.g., trade and industry) and enrollment reported in the 1976 state report was by specific program (e.g., auto mechanics), the projected enrollment at the specific program level for fiscal years 1979 and 1981 was assumed to be the same percentage of the program area as in fiscal year 1976. The program area enrollments in fiscal years 1979 and 1981 were assigned to specific programs to permit estimates of needs to be made at the lowest level possible.

Data from the annual reports and state plans were computerized to permit efficient analysis of the large quantity of data at several levels of detail. Tables of the estimates of needs

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*The program codes and titles are the same as listed in OE form 346-3 (7/75), Enrollments in Vocational Education Programs, which U.S.O.E. requests as part of each state's annual report. A list of the program codes and titles has been included in the appendix.

were generated by computer for inclusion in the report.

Assumptions

Several assumptions were made about the data and the application of the model to the data. The assumptions about the data were required because of differences in the data reported by states. Further, the application of the formula is an attempt to estimate future data based upon what is known about the present and past together with what is anticipated for the future. The assumptions made were as follows:

1. The sum of the specific program (e.g., program code 01.0100-01.9900) enrollments within a state is equal to the total enrollment for the program area (e.g., code 01.0000). In a few states this assumption was not represented by the data apparently due to mistakes in reporting the data. In such cases the total enrollment for a program area was changed to be the sum of the program enrollments for the area.

2. Adult enrollments which were presented at the program area (two-digit) level were included as "other programs" e.g., for 01.0000's, the 01.9900. Otherwise the sum of the enrollments would not equal the total enrollment for the program area.

3. The ratio of students to teachers reported by states in the 1976 fiscal year report to the U.S. Office of Education is assumed to be the same for the 1979 and 1981 fiscal years.

4. Projected enrollments provided in state plans are reasonable estimates of the number of vocational students in the years designated.

5. State projections of enrollment at the program area level only were assumed to be spread across the same specific programs at the same percentage of the program area enrollment as in fiscal year 1976. This permitted estimates of teachers needed to be made by specific vocational education program.

6. Programs listed in the state reports and state plans which were additional programs beyond the 155 USOE program titles were grouped under the "other programs" title and coded within the program area in which it was reported by the State.

Limitations

Limitations of the research reported in this document are as follows:

1. Needs for teachers in vocational education programs which were not included in state plans are not included in the estimated needs for teachers. Examples of such programs are CETA, private vocational schools, and public school vocational education programs in secondary and post-secondary schools which do not receive state and federal reimbursement.

2. The projected enrollment provided in each state plan is subject to change because of such factors as changes in employment demands, changes in technology within each state and nationally, the availability of funds, and desires expressed by the public.

3. Data on previous and projected enrollments are reported in varying formats which cause totals of data across states to be subject to misinterpretations when aggregated at the national level.

4. Programs which receive vocational reimbursement vary by state and by years which cause changes in vocational student enrollment.

5. Decreases in enrollment totals due to elimination of duplicate counting of students and due to small declines in actual enrollment do not necessarily result in a corresponding decreased need for teachers as the mathematical model of this research suggests. When net changes in enrollment are only a few students across several classes which cannot be regrouped to eliminate a proportionate number of teachers, the actual need for teachers is unchanged. Likewise, small increases in actual enrollment across several programs of the same title may not have an actual need for teachers though mathematically a need may be identified.

6. Estimates of needs for teachers by specific programs are believed to be more accurate at the national level than by state as unanticipated increases or decreases nationally may be a smaller percent change than in a single state.

7. Needs for teachers in programs which relate to two program areas, e.g., auto parts sales relating to both distribution and trade and industrial, may not be accurately addressed by the estimates, given the increasing

number of such programs and their requirements.

8. Needs for teachers by state reflect a point in time "snap shot" of anticipated programs and their enrollment. States should be consulted regarding latest plans and developments to recheck and update the estimated needs prior to utilization of data for a state.

9. The influence that overall declining enrollments in public education will have on vocational education and its needs for teachers remains to be identified.

10. Some of the program titles are sex sterotyped, e.g., fireman training, foremanship development, for which changes to eliminate the sterotyping terminology are not within the scope of this study; they are official titles used by the U. S. Office of Education.

Concerns about the Data and Their Explanations

Interpreting and simply reviewing the tables which describe state level needs for teachers gives rise to concerns relative to missing data, rapid increases and decreases in data, and general decreases in projected enrollment. Project staff contacted personnel in eleven states regarding such concerns which arose when analyzing the data to better understand and interpret the findings. The concerns identified by staff and explanations given by state level personnel are listed below to help the reader to carefully interpret the data and its implications.

Concerns About Data	Explanation By States
1. Technical programs offered in FY 1976, but not included in projected enrollment in FY 1979 and 1981.	The small number of technical programs and enrollments was combined with trade and industry projection and was reported in trade and industry.
2. Consumer and Homemaking enrollment in FY 1976 was several thousand, but there was no enrollment projected for FY 1979 or FY 1981.	Consumer and homemaking programs are no longer regarded as vocational education. Consumer and homemaking is regarded as vocational education, but was omitted from projected enrollment because it was believed to be of no interest to the U.S. Office of Education.

Concerns About Data	Explanation by States
3. Adult enrollment reported in FY 1976 was projected to decline 90 percent by FY 1979.	Teachers are no longer required to teach adult classes and the adult enrollment was expected to drop to one-tenth of previous level.
4. Sharp projected enrollment declines across all program areas for FY 1979 compared to enrollments reported in FY 1976.	Discontinued vocational reimbursement of many exploratory type programs and more selectivity in enrolling students who need and will benefit most from programs.
5. General decreases in projected enrollment for fiscal years 1979 and 1981 compared to FY 1976 reported enrollment.	Reclassified selected prevocational education programs to non-vocational status. Eliminated duplicate enrollment counts previously included in reporting and projection data. Changed projection of enrollment techniques from using previous enrollment, plus a percentage increase to projecting enrollments consistent with projected labor market needs.
6. Projected enrollment is provided at the two-digit program area level only.	Projections of enrollment were only made at the two-digit level as state and federal agencies don't need projected enrollment at a detailed level, but the actual enrollment is reported at the end of the year using six-digit level program codes and titles.

Those concerns and explanations by states indicate the diversity of reporting and planning practices by states. Further, the program operations in vocational education are dynamic and unique to each state. Therefore, a state should be consulted regarding changes that may have been made in their plans prior to using the data contained in this report. Also, if a state has determined its actual turnover rates for teachers, the estimates of turnover contained in this report should be adjusted to the states actual turnover rate.

FINDINGS

The findings of this research are presented in two parts: the needs for teachers nationally and the needs for teachers on a state-by-state basis. The needs nationally are presented by program areas, e.g., 17.0000 trades and industry, by specific programs, e.g., 17.0100 air conditioning, within program areas, and by specific programs in decreasing rank order.

At the state level, estimated needs for teachers are presented by program areas and the total needs for each state. Additional data are presented in the appendix, including a table on each state displaying estimated needs by program codes and titles, and a table displaying estimated needs for the highest ranking 20 percent of the programs in each state.

Nationally, the data show substantial anticipated needs for teachers for fiscal years 1977, 1978, and 1979, and for fiscal years 1977 through 1981. State data show needs for teachers in almost all programs. In all states approximately one-fifth of each state's programs accounted for 60 to 85 percent of the total needs for teachers in the state.

The data presented in the findings are calculated from the following factors:

(1) A student/teacher ratio consistent with the base year 1976
(2) Student enrollment increases projected in federal reports filed by the various states, and
(3) Teacher turnover estimated rates ranging from low, 7 percent; medium, 10 percent; to high, 13 percent.

Estimated Needs for Teachers Nationally

National Needs by Program Areas

Table 7 indicates that the estimated number of additional teachers needed nationally could be as high as 110,216 by fiscal year 1979 and as high as 200,481 by fiscal year 1981. These represent cumulative needs for fiscal years 1977 through 1979 and 1977 through 1981. The total estimated needs for teachers reflected in Table 7 are the number needed to supplement the total of 310,000 teachers in fiscal year 1976 which are required

as a result of projected changes in enrollment and turnover of teachers. The difference in the needs for 1979 and 1981 is the estimated needs for fiscal years 1980 and 1981.

The range presented in Table 7 reflects turnover rates of teachers from low turnover (7 percent), medium turnover (10 percent), and high turnover (13 percent). The differences within the range account for the differential in estimated needs for teachers by fiscal year 1979 as follows: 60,346 assuming low turnover, 82,251 assuming medium turnover, and 110,216 assuming high turnover of teachers. Similarly, the differential in estimated needs for teachers in fiscal year 1981 is 117,366 assuming low turnover, 158,872 assuming medium turnover, and 200,481 assuming high turnover.

The estimated number of vocational teachers needed by program area is also provided in Table 7. For 1979 the three program areas needing the largest number of teachers were trades and industry, office, and health. The next two program areas of strongest need are the areas of distribution and agriculture. The program areas showing the lowest demand for teachers are technical, home economics occupational, and consumer and homemaking. The statistics for 1981 are similar and vary only slightly. The three program areas showing the strongest need for teachers by fiscal year 1981 are the same three shown for fiscal year 1979. The next two strongest demand program areas, however, differ slightly by fiscal year 1981. They are technical, and consumer and homemaking. The last three with the lowest demand by fiscal year 1981 are distribution, agriculture, and home economics occupational. Table 7.1 rank orders the programs by estimated needs for fiscal years 1977, 1978, and 1979 shown in the column titled "1979 Rank Order." The estimated needs for fiscal years 1977 through 1981 are shown in the column titled "1981 Rank Order."

Effects of Vocational Teacher Turnover Rates on Total Needs for Teachers by Program Area. The rate of vocational teacher turnover makes an important impact on the needs for qualified teachers. National totals as well as program area totals show substantive differences between the low rate of 7 percent and the high rate of 13 percent. Table 7.2, taken from data in Table 7, illustrates the differences by area and also gives the percentage difference between the two numbers.

The three highest areas in magnitude of difference due to turnover are trades and industry, office, and consumer and homemaking. The next two are health and distribution. The lowest three program areas of teacher need attributed to turnover are technical, agriculture, and home economics occupational.

TABLE 7

ESTIMATED NUMBER OF TEACHERS NEEDED* NATIONALLY BY VOCATIONAL EDUCATION PROGRAM AREA FOR FISCAL YEARS 1979 AND 1981 UNDER THREE ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES**

PROGRAM AREA CODES & TITLES	1979			1981		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
01.0000 AGRICULTURE	3537	5039	6534	6467	8968	11459
04.0000 DISTRIBUTION	5051	6839	8633	9749	12732	15722
07.0000 HEALTH	6287	8452	10625	11576	15193	18804
09.0100 CONSUMER AND HOMEMAKING	704	4111	7526	7924	13604	19290
09.0200 HOME ECONOMICS OCCUPATIONAL PREPARATION	3312	4371	5425	5988	7762	9524
14.0000 OFFICE	13388	19393	25400	25597	35604	45612
16.0000 TECHNICAL	3372	4898	6425	7316	9856	12396
17.0000 TRADES AND INDUSTRY	24679	32148	39621	42709	55165	67616
TOTAL FOR ALL PROGRAM AREAS	60330	95251	110189	117336	159872	200433

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.
**ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES ARE LOW(7%), MEDIUM (10%), AND HIGH (13%)

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TABLE 7.1

Rank Order of Estimated Needs for Teachers
by Program Areas and Years

	1979 Rank Order	1981 Rank Order
Trade and Industry	1	1
Office	2	2
Health	3	3
Distribution	4	6
Agriculture	5	7
Technical	6	4
Home Economics Occupational	7	8
Consumer and Homemaking	8	5

TABLE 7.2

Differences in Estimated Need for Teachers Nationally
Between High and Low Teacher Turnover Rates

	High Turnover 13%	Low Turnover 7%	Difference in Need	Increase in Need
Agriculture	6,534	3,537	2,997	85
Distribution	8,633	5,051	3,582	71
Health	10,625	6,287	4,338	69
Consumer and Homemaking	7,526	3,294	4,232	128
Home Economics Occupational	5,425	1,112	2,113	64
Office	25,400	13,388	12,012	90
Technical	6,452	3,388	3,064	90
Trades and Industry	39,621	24,679	14,942	61
Totals	110,216	60,356	49,870	83

However, the rank order of the percentage increase is somewhat different. The highest percentage increase areas are consumer and homemaking, office, and technical. The next two highest percentage increases are agriculture and distribution. The lowest three percentage increases due to different levels of teacher turnover rates are health, home economics occupational, and trades and industry. Table 7.3 depicts these data by rank ordering the differences and percentage increase.

TABLE 7.3

Rank Order of the Differences in Estimated Needs for Teachers Nationally Between 7 and 13 Percent Turnover Rates for Fiscal Year 1979

	Rank Order of Differences	Rank Order of Increase
Trades and Industry	1	8
Office	2	2
Consumer and Homemaking	3	1
Health	4	6
Distribution	5	5
Technical	6	3
Agriculture	7	4
Home Economics Occupational	8	7

Growth of Teachers Needed Over Time Comparing Fiscal Years 1979 and 1981. Equally as vital as the turnover rate to needed teaching personnel is the growth factor demonstrated in comparing 1979 to 1981. Using the estimated need for teachers in fiscal year 1981 based on medium rate of teacher turnover and subtracting the estimated need for teachers in fiscal year 1979 based on medium teacher turnover yields the number of teachers needed due to growth in enrollment. Table 7.4 describes the growth in the number of teachers and the percentage of growth between the fiscal years 1979 and 1981.

The difference column shows the growth or increase in the teachers needed by program area over the two-year period from fiscal years 1979 to 1981. For example, agriculture shows a

TABLE 7.4

Differences in Estimated Need for Teachers Nationally
Due to Growth in Enrollment by Program Area
for Fiscal Years 1979 and 1981

	1981 Medium Turnover	1979 Medium Turnover	Differences in Need	Percent Increase in Need
Agriculture	8,966	5,039	3,927	78
Distribution	12,732	6,839	5,893	86
Health	15,183	8,452	6,731	80
Consumer and Homemaking	13,604	4,111	9,493	231
Home Economics Occupational	7,762	4,381	3,381	77
Office	35,604	19,393	16,211	84
Technical	9,856	4,898	4,958	101
Trade and Industry	55,165	32,143	23,022	72
Totals	158,872	85,251	73,621	86

need for an additional 3,927 teachers in 1981 over what was needed in 1979. This is a 78 percent increase in two years.

The rank order of these differences shows results similar to differences using turnover rates. The highest three program areas are trade and industry, office, and consumer and homemaking. The next two largest increases due to growth are health and distribution. The lowest three program areas are technical, agriculture, and home economics occupational.

However, the rank order of the percentage increase due to growth in enrollment is quite different. The top three increases based on percentage increase are consumer and homemaking, technical, and distribution. The next two are office and health. The bottom three are agriculture, home economics occupational, and trades and industry. A graphic illustration of the rank ordering of the amount of change and the percentage of increase follows in Table 7.5.

TABLE 7.5

Rank Order of Program Areas by Estimated Need for Teachers Nationally for Fiscal Years 1979 and 1981 Using Medium Teacher Turnover Rate

	Rank Order of the Amount of Change 1981-1979	Rank Order of the Percent Increase
Trade and Industry	1	8
Office	2	4
Consumer and Homemaking	3	1
Health	4	5
Distribution	5	3
Technical	6	2
Agriculture	7	6
Home Economics Occupational	8	7

National Needs by Specific Programs

Table 8 supplies the same type data as Table 7 in greater detail. While Table 7 describes program areas (two-digit level), Table 8 provides data on needs by specific program (six-digit level). Instead of one program area, e.g., agriculture, eight specific programs within agriculture are provided.

Each of the program areas will be discussed as separate units. In each case, the top ranked one-third, middle ranked one-third, and lowest ranked one-third programs will be identified. Both 1979 needs and 1981 teacher needs will be ranked.

Agriculture. There are seven programs within the agriculture program area, plus an "other" category. These programs are in the years 1979 and 1981 by the magnitude of their needs for teachers as shown in Table 8.1 on page 38.

TABLE 8

ESTIMATED NUMBER OF TEACHERS NEEDED* NATIONALLY BY VOCATIONAL EDUCATION PROGRAM IN FISCAL YEARS 1979 AND 1981 UNDER THREE ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES**

PROGRAM CODES AND TITLES	1979			1981		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
01.0000 TOTAL - AGRICULTURE	3537	5039	6534	6467	8944	11458
01.0100 AGRICULTURAL PRODUCTION	1460	2244	3024	2875	4151	5484
01.0200 AGRICULTURAL SUPPLIES/SERVICES	110	160	208	214	290	367
01.0300 AGRICULTURAL MECHANICS	401	610	822	819	1164	1509
01.0400 AGRICULTURAL PRODUCTS	44	70	89	81	124	163
01.0500 ORNAMENTAL HORTICULTURE	517	701	890	887	1199	1511
01.0600 AGRICULTURAL RESOURCES	81	130	177	183	262	344
01.0700 FORESTRY	87	119	149	152	200	249
01.9900 OTHER	839	1006	1175	1339	1620	1903
04.0000 TOTAL - DISTRIBUTION	5051	6939	9633	9749	12732	15722
04.0100 ADVERTISING SERVICES	500	534	542	441	491	545
04.0200 APPAREL AND ACCESSORIES	205	254	299	337	423	505
04.0300 AUTOMOTIVE	115	138	159	190	224	251
04.0400 FINANCE AND CREDIT	181	297	402	492	668	821
04.0500 FLORISTRY	11	24	36	44	67	83
04.0600 FOOD DISTRIBUTION	415	491	550	605	723	837
04.0700 FOOD SERVICES	113	208	307	496	680	713
04.0800 GENERAL MERCHANDISE	1832	2425	3015	3193	4178	5162
04.0900 HARDWARE, BUILDING MATERIALS	36	57	69	85	108	132
04.1000 HOME FURNISHINGS	46	54	64	74	91	107
04.1100 HOTEL AND LODGING	125	161	199	234	297	362
04.1200 INDUSTRIAL MARKETING	156	209	265	305	394	481
04.1300 INSURANCE	71	97	130	184	198	361
04.1400 INTERNATIONAL TRADE	-1	1	3	4	4	5
04.1500 PERSONAL SERVICES	93	90	128	122	188	248
04.1600 PETROLEUM	23	34	41	46	66	81
04.1700 REAL ESTATE	829	1099	1347	1509	1944	2382
04.1800 RECREATION AND TOURISM	149	200	248	272	360	429
04.1900 TRANSPORTATION	86	118	158	174	233	292
04.2000 RETAIL TRADE, OTHER	221	262	302	333	394	460
04.3100 WHOLESALE TRADE, OTHER	122	127	134	147	140	133
04.9900 OTHER	440	566	948	1123	1499	1871
07.0000 TOTAL - HEALTH	6297	9452	10628	11576	15183	18804
07.0101 DENTAL ASSISTANT	322	396	471	531	648	769
07.0102 DENTAL HYGIENIST (ASSOCIATE DEGREE)	69	95	116	132	165	206
07.0103 DENTAL LABORATORY TECHNOLOGY	87	104	118	146	161	184
07.0199 OTHER DENTAL	14	15	14	19	19	22
07.0203 MEDICAL LABORATORY ASSISTING	121	179	231	321	406	491
07.0299 OTHER MEDICAL LABORATORY TECHNOLOGY	50	77	109	117	163	214

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.
**ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES ARE LOW(7%), MEDIUM (10%), AND HIGH (13%)

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TABLE 8 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* NATIONALLY BY VOCATIONAL EDUCATION PROGRAM IN FISCAL YEARS 1979 AND 1981 UNDER THREE ASSUMPTIONS ABOUT ANNUAL TURNOVER RATE**

PROGRAM CODES AND TITLES	1979			1981		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
07.0301 NURSING (ASSOCIATE DEGREE)	1208	1571	1936	1932	2846	3156
07.0302 PRACTICAL (VOCATIONAL) NURSING	453	784	1115	1091	1644	2201
07.0303 NURSING ASSISTANT (AIDE)	417	790	1162	1221	1935	2644
07.0305 SURGICAL TECHNOLOGY	173	184	197	231	248	265
07.0399 OTHER NURSING	-60	43	144	332	508	648
07.0401 OCCUPATIONAL THERAPY	-9	0	11	17	31	41
07.0402 PHYSICAL THERAPY	14	25	34	48	64	84
07.0499 OTHER REHABILITATION	9	12	19	29	33	41
07.0501 RADIOLOGIC TECHNOLOGY	137	172	208	252	282	348
07.0503 NUCLEAR MEDICAL TECHNOLOGY	3	3	4	5	7	10
07.0599 OTHER RADIOLOGIC	73	97	118	125	161	198
07.0600 OPHTHALMIC	4	9	13	17	25	37
07.0701 ENVIRONMENTAL HEALTH	-11	-4	8	12	33	38
07.0800 MENTAL HEALTH TECHNOLOGY	-116	-66	-10	-4	85	172
07.0903 INHALATION THERAPY TECHNOLOGY	102	133	162	174	219	263
07.0904 MEDICAL ASSISTANT	168	242	318	349	469	592
07.0906 HEALTH AIDE	40	88	153	164	268	348
07.0907 MEDICAL EMERGENCY TECHNICIAN	133	282	431	390	622	872
07.0909 MORTUARY SCIENCE	38	41	44	50	54	56
07.0900 OTHER	2829	3160	3499	3942	4401	4969
09.0100 TOTAL - CONSUMER AND HOMEMAKING	704	4111	7526	7924	13604	19299
09.0101 COMPREHENSIVE HOMEMAKING	-725	817	2359	2806	5382	7955
09.0102 CHILD DEVELOPMENT	-148	28	228	202	536	863
09.0103 CLOTHING AND TEXTILES	-157	208	574	571	1182	1787
09.0104 CONSUMER EDUCATION	431	591	754	802	1069	1341
09.0106 FAMILY RELATIONS	585	761	939	936	1232	1526
09.0107 FOOD AND NUTRITION	143	512	867	883	1467	2044
09.0108 HOME MANAGEMENT	61	90	136	154	203	264
09.0109 HOUSING AND HOME FURNISHINGS	62	195	328	324	542	760
09.0199 OTHER	363	811	1258	1256	1999	2739
09.0200 TOTAL - OCCUPATION PREPARATION	3312	4371	5428	5998	7762	9526
09.0201 CARE AND GUIDANCE OF CHILDREN	848	1195	1529	1665	2225	2786
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	-3	206	414	447	810	1171
09.0203 FOOD MGMT., PRODUCTION & SERVICES	865	1187	1499	1627	2155	2682
09.0204 HOME FURNISHING, EQUIPMENT & SERVICES	66	131	199	197	309	414
09.0205 INSTITUTIONAL & HOME MGMT. & SERVICES	336	364	401	476	579	684
09.0299 OTHER	1328	1413	1507	1731	1843	2004

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.
**ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES ARE LOW(7%), MEDIUM (10%), AND HIGH (13%)

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TABLE 8 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED NATIONALLY BY VOCATIONAL EDUCATION PROGRAM IN FISCAL YEARS 1979 AND 1981 UNDER THREE ASSUMPTIONS ABOUT ANNUAL TURNOVER RATE**

PROGRAM CODES AND TITLES	1979			1981		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
14.0000 TOTAL - OFFICE	13388	18393	25600	28587	36604	48612
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	1856	2843	3937	3743	5395	7051
14.0201 COMPUTER AND CONSOLE OPERATORS	760	852	941	959	1107	1259
14.0203 PROGRAMMERS	259	325	413	424	569	709
14.0299 OTHER BUSINESS DATA PROCESSING	-145	58	248	284	438	984
14.0300 FILING, OFFICE MACHINES, CLERICAL OCCUP	3612	4766	5919	5951	7816	9738
14.0400 INFORMATION COMMUNICATION OCCUPATIONS	205	278	355	367	493	616
14.0500 MATERIALS SUPPORT, TRANSPORTATION, ETC.	56	70	84	97	107	126
14.0600 PERSONNEL, TRAINING AND RELATED OCCUPS.	28	109	184	184	327	471
14.0700 STENO., SECRETARIAL AND RELATED OCCUP	1942	3333	4725	4627	6947	9271
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	603	909	1212	1241	1757	2267
14.0900 TYPING AND RELATED OCCUPATIONS	-871	353	1576	1348	3404	5440
14.9900 OTHER	5113	5494	5871	6382	7014	7639
16.0000 TOTAL - TECHNICAL	3372	4999	6625	7316	9856	12396
16.0101 AERONAUTICAL TECHNOLOGY	49	64	82	83	114	136
16.0103 ARCHITECTURAL TECHNOLOGY	181	252	329	346	467	595
16.0104 AUTOMOTIVE TECHNOLOGY	76	119	146	190	244	307
16.0105 CHEMICAL TECHNOLOGY	40	53	69	78	94	116
16.0106 CIVIL TECHNOLOGY	317	401	487	524	668	804
16.0107 ELECTRICAL TECHNOLOGY	136	190	244	278	389	502
16.0108 ELECTRONIC TECHNOLOGY	725	1001	1271	1317	1774	2224
16.0109 ELECTROMECHANICAL TECHNOLOGY	164	199	234	236	273	310
16.0110 ENVIRONMENTAL CONTROL TECHNOLOGY	1	32	58	41	107	167
16.0111 INDUSTRIAL TECHNOLOGY	127	198	268	300	415	536
16.0112 INSTRUMENTAL TECHNOLOGY	30	42	49	59	77	86
16.0113 MECHANICAL TECHNOLOGY	251	350	444	483	649	804
16.0114 METALLURGICAL TECHNOLOGY	30	49	66	78	108	133
16.0117 SCIENTIFIC DATA TECHNOLOGY	-2	21	10*	105	167	260
16.0601 COMMERCIAL PILOT TRAINING	30	53	74	80	114	141
16.0602 FIRE AND FIRE SAFETY TECHNOLOGY	-49	39	121	134	277	419
16.0603 FORESTRY TECHNOLOGY	-16	-5	8	8	32	52
16.0604 OCEANOGRAPHIC TECHNOLOGY	13	17	21	26	34	44
16.0605 POLICE SCIENCE	110	422	647	699	1161	1662
16.9901 AIR POLLUTION TECHNOLOGY	1386	1590	1770	1994	2310	2624
16.9902 WATER AND WASTE WATER TECHNOLOGY	20	20	20	23	23	24
16.9900 OTHER	53	47	41	59	45	109
17.0000 TOTAL - TRADES AND INDUSTRY	24678	32148	39621	42300	55145	67616
17.0100 AIR CONDITIONING	299	492	691	723	1042	1367
17.0200 APPLIANCE REPAIR	93	142	190	252	303	348
17.0301 BODY AND FENDER REPAIR	479	679	874	947	1196	1430
17.0302 AUTO MECHANICS	884	1868	2327	2130	4318	1203

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

**ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES ARE LOW(7%), MEDIUM (10%), AND HIGH (13%)

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TABLE B (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED NATIONALLY BY VOCATIONAL EDUCATION PROGRAM IN FISCAL YEARS 1979 AND 1981 UNDER THREE ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES**

PROGRAM CODES AND TITLES	1979			1981		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
17.0399 OTHER AUTOMOTIVE	1278	1444	1612	1708	1988	2266
17.0400 AVIATION OCCUPATIONS	116	177	236	249	345	445
17.0500 BLUEPRINT READING	-78	-47	-17	-*	47	100
17.0600 BUSINESS MACHINE MAINTENANCE	58	66	75	100	119	136
17.0700 COMMERCIAL ART OCCUPATION	351	445	539	644	797	928
17.0800 COMMERCIAL FISHERY OCCUPATIONS	30	39	47	54	71	83
17.0900 COMMERCIAL PHOTOGRAPHY OCCUPATIONS	236	304	371	453	570	682
17.1001 CARPENTRY	1175	1552	1927	1777	2404	3034
17.1002 ELECTRICITY	270	438	608	658	965	1223
17.1004 MASONRY	191	300	413	437	621	810
17.1007 PLUMBING AND PIPEFITTING	69	178	288	328	511	693
17.1099 OTHER CONSTRUCTION & MAINT. TRADES	-1485	-1130	-779	-840	-253	332
17.1102 CUSTODIAL SERVICE	138	184	228	237	310	378
17.1200 DIESEL MECHANIC	204	260	310	369	461	538
17.1300 DRAFTING OCCUPATIONS	1020	1376	1724	1651	2236	2825
17.1400 ELECTRICAL OCCUPATIONS	314	539	770	916	1190	1572
17.1500 ELECTRONIC OCCUPATIONS	800	1131	1473	1443	2204	3744
17.1600 FABRIC MAINTENANCE SERVICES	-10	-1	10	10	24	40
17.1700 FOREMANSHIP SUPERVISOR & MGMT. DEV.	233	491	724	704	1105	1514
17.1900 GRAPHIC ARTS OCCUPATIONS	546	779	1016	1056	1446	1941
17.2000 INDUSTRIAL ATOMIC ENERGY OCCUPATIONS	-1	0	1	3	5	8
17.2100 INSTRUMENT MAINT. AND REPAIR OCCUP.	34	43	53	60	80	96
17.2200 MARITIME OCCUPATIONS	169	190	211	78	113	147
17.2302 MACHINE SHOP	1027	1282	1538	1829	2252	2676
17.2303 MACHINE TOOL OPERATION	91	121	149	121	222	323
17.2305 SHEET METAL	15	80	147	148	255	362
17.2306 WELDING AND CUTING	977	1419	1862	1911	2651	3386
17.2307 TOOL AND DIE MAKING	145	163	181	186	213	241
17.2399 OTHER METALWORKING OCCUPATIONS	-86	180	443	455	899	1340
17.2400 METALLURGY OCCUPATIONS	15	24	32	34	51	61
17.2601 BARBERING	1	8	17	29	43	55
17.2602 COSMETOLOGY	629	913	997	1119	1426	1734
17.2699 OTHER PERSONAL SERVICES	44	76	107	94	148	204
17.2700 PLASTICS OCCUPATIONS	60	79	98	97	125	156
17.2801 FIREMAN TRAINING	1893	2054	2217	2352	2618	2890
17.2802 LAW ENFORCEMENT TRAINING	1019	1295	1563	1626	2079	2537
17.2899 OTHER PUBLIC SERVICES	-38	114	266	281	530	788
17.2900 QUANTITY FOOD OCCUPATIONS	85	195	309	331	523	710
17.3000 REFRIGERATION	51	78	102	109	149	199
17.3100 SMALL ENGINE REPAIR	292	417	542	574	788	994
17.3200 STATIONARY ENERGY SOURCES OCCUPATIONS	47	81	113	119	172	224
17.3300 TEXTILE PRODUCTION AND FABRICATION	241	369	492	586	799	1015
17.3400 LEATHER WORKING	14	21	28	29	37	45
17.3500 UPHOLSTERING	122	170	221	190	278	360
17.3600 WOODWORKING OCCUPATIONS	327	506	682	680	978	1272
17.9900 OTHER	9768	10198	10629	12617	13333	14044

**ASSUMPTIONS ABOUT ANNUAL TURNOVER RATES ARE LOW(7%), MEDIUM (10%), AND HIGH (13%)
*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 8.1

Rank Order of Agriculture Programs by Their Estimated Need for Teachers Nationally for Fiscal Years 1979 and 1981

	1979	1981
Agriculture Production	1	1
Other	2	2
Ornamental Horticulture	3	3
Agriculture Mechanics	4	4
Agriculture Supplies and Services	5	5
Agriculture Resources	6	6
Forestry	7	7
Agriculture Products	8	8

The first three ranked programs account for close to 85 percent of the total anticipated teacher needs in vocational agriculture.

Note that the rank order is the same for all programs in fiscal years 1979 and 1981.

Distribution. There are twenty-one programs within the distribution program area, plus an "other" category. These programs are ranked for fiscal years 1979 and 1981 by the magnitude of their need for teachers as follows:

TABLE 8.2

Rank Order of Distribution Programs by Their Estimated Need for Teachers Nationally for Fiscal Years 1979 and 1981

	1979	1981
General Merchandise	1	1
Real Estate	2	2
Other	3	3
Advertising Services	4	5
Food Distribution	5	4
Finance and Credit	6	6
Retail Trade	7	9
Apparel and Accessories	8	8
Industrial Marketing	9	10
Food Services	10	7
Recreation and Tourism	11	11
Hotel and Lodging	12	12
Automation	13	14
Wholesale Trade	14	17
Transportation	15	13
Insurance	16	15
Personal Services	17	16
Hardware, Building Materials	18	18
Home Furnishings	19	19
Petroleum	20	21
Floristry	21	20
International Trade	22	22

The highest six ranked programs account for close to 82 percent of the teachers needed in the distribution program area.

The rank order shifted slightly for a few programs by 1981 with food services, food distribution, personal services, insurance, and transportation showing relatively greater need for teachers.

Health. There are twenty programs within the health area, plus six "other" categories. These programs are rank ordered for fiscal years 1979 and 1981 by the magnitude of their need for teachers as follows:

TABLE 8.3

Rank Order of Health Programs by Their Estimated Need for Teachers Nationally for Fiscal Years 1979 and 1981

	1979	1981
Other	1	1
Nursing (Associate Degree)	2	2
Practical Nursing	3	4
Nursing Assistant	4	3
Dental Assistant	5	5
Medical Emergency Technical	6	6
Medical Assistant	7	7
Surgical Technology	8	17
Medical Laboratory Assistant	9	8
Radiologic Technology	10	10
Inhalation Therapy Technology	11	13
Dental Laboratory Technology	12	16.5
Health Aide	13	11
Other Radiologic	14	16.5
Dental Hygienist (Assoc. Degree)	15	14
Other Medical Laboratory Technology	16	15
Other Nursing	17	9
Mortuary Science	18	20
Physical Therapy	19	19
Other Dental	20	25
Other Rehabilitation	21	21
Ophthalmic	22	23
Nuclear Medical Technology	23	26
Occupational Therapy	24	22
Environmental Health	25	24
Mental Health Technology	26	18

The highest ranked eight programs account for almost all teacher need in the health area.

The rank order shifted somewhat for fiscal year 1981, but the absolute magnitude of the shift is insignificant, except for surgical technology which decreased from 8 to 17 and other nursing which increased from 17 to 9 in rank.

Consumer and Homemaking. There are eight programs within the consumer and homemaking area, plus one "other" category. These programs are ranked for fiscal years 1979 and 1981 by the magnitude of their teacher needs as follows:

TABLE 8.4

Rank Order of Consumer and Homemaking Programs by Their Estimated Need for Teachers for Fiscal Years 1979 and 1981

	1979	1981
Comprehensive Homemaking	1	1
Other	2	2
Family Relations	3	4
Consumer Education	4	6
Food and Nutrition	5	3
Clothing and Textiles	6	5
Housing and Home Furnishing	7	7
Home Management	8	9
Child Development	9	8

The highest ranked one-third of the programs account for the majority of teachers needed in the consumer and homemaking area.

The rank order for 1981 shifted slightly for five of the occupations when compared to 1979. The programs comprehensive homemaking, home management, and consumer education showed the greatest relative increase in need for teaching personnel.

Home Economics Occupational. There are five programs within the home economics occupational area, plus one "other" category. These programs are ranked for fiscal years 1979 and 1981 by the magnitude of their need for teachers as follows:

TABLE 8.5

Rank Order of Home Economics Occupational Programs by Their Estimated Needs for Teachers Nationally for Fiscal Years 1979 and 1981

	1979	1981
Other	1	3
Food Management, Production and Services	2	2
Care and Guidance of Children	3	1
Institutional and Home Management, and Services	4	5
Clothing Management, Production, and Services	5	4
Home Furnishings, Equipment, and Services	6	6

The highest ranked one-third of the programs account for 68 percent of the teachers needed for fiscal year 1979 in this area.

The rank order of needs for teachers shifted only slightly in 1981. Most significant was care and guidance of children which increased from 3 to 1 in rank order. All programs except other (09.0299) experienced approximately 100 percent increase in the estimated need for teachers.

Office. There are ten programs and two "other" programs within the office area. These programs are ranked for fiscal years 1979 and 1981 by the magnitude of their need for teachers as follows:

TABLE 8.6

Rank Order of Office Programs by Their Estimated Need for Teachers Nationally for Fiscal Years 1979 and 1981

	1979	1981
Other	1	1
Filing, Office Machines, Clerical	2	1
Steno, Secretarial, and Related Occupations	3	3
Accounting and Computing Occupations	4	4
Supervisory and Administrative Management	5	6
Computer and Console Operators	6	7
Typing and Related Occupations	7	5
Programmers	8	9
Information Communications Occupations	9	10
Personnel Training and Related Occupations	10	11
Materials Support, Transportation	11	12
Other Business Data Processing	12	8

The highest ranked one-third of these programs account for 85 percent of the total needs for teachers in the office program area.

The rank order of teacher needs shifted from fiscal year 1979 to fiscal year 1981. All programs gained rapidly in their need for teaching personnel except materials support, transportation (14.0500).

Technical. There are twenty-one programs and one "other" program within the technical area. These programs are ranked for fiscal years 1979 and 1981 by the magnitude of their need for teachers as follows:

TABLE 8.7

Rank Order of Technical Programs by the Estimated Need for Teachers Nationally for Fiscal Years 1979 and 1981

	1979	1981
Air Pollution Technology	1	1
Electronic Technology	2	2
Police Science	3	3
Civil Technology	4	4
Mechanical Technology	5	5
Architectural Technology	6	6
Electrical Technology	7	8
Industrial Technology	8	7
Electromechanical Technology	9	10
Automotive Technology	10	11
Aeronautical Technology	11	13.5
Commercial Pilot Training	12	13.5
Chemical Technology	13	17
Scientific Data Technology	14	12
Metallurgical Technology	15	15
Other	16	18
Instrumental Technology	17	19
Fire and Fire Safety Technology	18	9
Environmental Control Technology	19	16
Water and Waste Water Technology	20	22
Oceanographic Technology	21	20
Forestry Technology	22	21

The highest ranked one-third of these programs account for almost all (99 percent) of the total teacher personnel needs in the technical program area.

The rank order of the teaching personnel needs shifted slightly from 1979 to 1981 with fire and fire safety technology making the greatest change from 18 to 9 in rank. However, many programs show relatively rapid increases in needs for teachers when comparing the two years.

Trade and Industry. There are forty-four programs and six "other" programs within the trade and industry area. These programs are ranked for fiscal years 1979 and 1981 by the magnitude of their need for teachers as follows:

TABLE 8.8

Rank Order of Trade and Industry Programs by Their Estimated Need for Teachers Nationally for Fiscal Years 1979 and 1981

	1979	1981
Other	1	1
Fireman Training	2	4
Automotive Mechanics	3	2
Carpentry	4	5
Other Automotive	5	10
Welding and Cutting	6	3
Drafting	7	7
Law Enforcement Training	8	9
Machine Shops	9	6
Electronic Occupations	10	8
Cosmetology	11	12
Graphic Arts Occupations	12	11
Body and Fender	13	14
Electrical Occupations	14	13
Woodworking Occupations	15	17
Air Conditioning	16	16
Foremanship Supervisor and Management Development	17	15
Commercial Art Occupations	18	22
Electricity	19	18
Small Engine Repairs	20	21

TABLE 8.8 (Continued)

	1979	1981
Textile Production and Fabrication	21	20
Commercial Photography	22	24
Masonry	23	23
Diesel Mechanics	24	28
Quantity Food Occupations	25	26
Maritime Occupations	26	41
Custodial Service	27	30
Other Metalworking Occupations	28	19
Plumbing and Pipefitting	29	27
Aviation Occupations	30	29
Upholstering	31	32
Tool and Die Making	32	35
Appliance Repair	33	31
Machine Tool Operation	34	34
Other Public Services	35	25
Stationary Energy Sources	36	36
Sheet Metal	37	33
Plastics	38	39
Other Personal Services	39	37.5
Refrigeration	40	37.5
Business Machine Maintenance	41	40
Instrument Maintenance and Repair	42	42
Commercial Fishery Occupations	43	43
Metallurgy Occupations	44	44
Leather Working	45	47
Barbering	46	46
Industrial Atomic Energy Occupations	47	49
Fabric Maintenance Services	48	48
Blueprint Reading	49	45
Other Construction and Maintenance	50	20

The highest ranked one-third of the programs account for almost 100 percent of the increases in personnel needs in the trade and industry area.

The rank order of teacher needs shifted in about one-fourth of the programs from fiscal year 1979 to 1981. The changes in rank were mostly for the middle one-third and lower one-third of the programs and as a result, were insignificant in terms of number of teachers represented by the changes. An exception was welding and cutting which changed from a rank of 6 to 3. Most programs showed rapid gains in their estimated need for teachers. However, the last three ranked programs showed declining need for teachers.

Rank Order of National Needs by Specific Program

Table 9 rank orders all 155 six-digit vocational programs by the estimated number of teachers needed for fiscal years 1979 and 1981. The program ranked number one is the program estimated to need more teachers than any other program in the nation.

Rank ordering all 155 programs provides a perspective about the relative need for teachers for each program. No averages, ranges, or more sophisticated statistical approaches are needed, for the data are most useful in unaggregated form. The reader can go to a program of interest, e.g., 04.17000 Real Estate, and determine the number of teachers estimated to be needed and see how that need ranks with other vocational programs.

Table 9 also prioritizes estimates of teachers needed to fill classrooms. The relatively large number of teachers in the highest ranked programs and the relatively small numbers of teachers in the low ranked programs serve as a base for establishing priorities.

The importance of relatively few programs in the estimates of teacher needs can be seen easily from Table 9.1 on page 52. A relatively small number of programs account for a large portion of estimated teaching personnel needed to staff programs.

TABLE 9

NATIONAL RANKINGS* OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES AND TITLES	1979	1981	RANK ORDER
17.9900 OTHER	10198	13323	1
14.9900 OTHER	5494	7011	2
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	4766	7014	3
14.0760 STENO., SECRETARIAL AND RELATED OCCUP.	3333	6947	4
07.9900 OTHER	3160	4401	5
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	2848	5395	6
04.0800 GENERAL MERCHANDISE	2429	4179	7
01.0100 AGRICULTURAL PRODUCTION	2244	4181	8
17.2861 FIREMAN TRAINING	2054	2618	9
17.0302 AUTO MECHANICS	1885	4215	10
16.9901 AIR POLLUTION TECHNOLOGY	1580	2310	11
07.0301 NURSING (ASSOCIATE DEGREE)	1571	2546	12
17.1001 CARPENTRY	1552	1404	13
17.0399 OTHER AUTOMOTIVE	1444	1988	14
17.2306 WELDING AND CUTING	1418	2651	15
09.0299 OTHER	1413	1861	16
17.1300 DRAFTING OCCUPATIONS	1396	2234	17
17.2802 LAW ENFORCEMENT TRAINING	1295	2079	18
17.2502 MACHINE SHOP	1292	2252	19
09.0203 FOOD MGMT., PRODUCTION & SERVICES	1189	2155	20
09.0201 CARE AND GUIDANCE OF CHILDREN	1185	2225	21
17.1560 ELECTRONIC OCCUPATIONS	1151	2206	22
04.1700 REAL ESTATE	1044	1846	23
01.9900 OTHER	1004	1520	24
16.0108 ELECTRONIC TECHNOLOGY	1001	1914	25
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	904	1757	26
14.0201 COMPUTER AND CONSOLE OPERATORS	852	1107	27
09.0101 COMPREHENSIVE HOMEMAKING	817	1382	28
17.2602 COSMETOLOGY	813	1426	29
09.0199 OTHER	811	1999	30
07.0302 PRACTICAL (VOCATIONAL) NURSING	784	1645	31
07.0303 NURSING ASSISTANT (AIDE)	780	1835	32
17.1900 GRAPHIC ARTS OCCUPATIONS	779	1448	33
09.0106 FAMILY RELATIONS	761	1232	34
01.0500 ORNAMENTAL HORTICULTURE	701	1199	35
17.0301 BODY AND FENDER REPAIR	678	1186	36
04.9900 OTHER	644	1499	37
01.0300 AGRICULTURAL MECHANICS	610	1164	38
09.0104 CONSUMER EDUCATION	591	1069	39
17.1400 ELECTRICAL OCCUPATIONS	539	1190	40

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHERS TURNOVER

*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979

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TABLE 9 (continued)

NATIONAL RANKING* OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES AND TITLES	1979	1981	RANK ORDER
04.0100 ADVERTISING SERVICES	536	691	41
09.0107 FOOD AND NUTRITION	512	1467	42
17.3600 WOODWORKING OCCUPATIONS	500	978	43
17.0100 AIR CONDITIONING	492	1042	44
04.0600 FOOD DISTRIBUTION	481	723	45
17.1700 FOREMANSHIP SUPERVISOR & MGMT. DEV.	481	1105	46
17.0700 COMMERCIAL ART OCCUPATION	465	859	47
17.1002 ELECTRICITY	438	945	48
17.3100 SMALL ENGINE REPAIR	417	788	49
16.0605 POLICE SCIENCE	402	1181	50
16.0106 CIVIL TECHNOLOGY	401	665	51
07.0101 DENTAL ASSISTANT	396	648	52
17.3300 TEXTILE PRODUCTION AND FABRICATION	369	799	53
09.0205 INSTITUTIONAL & HOME MGMT. & SERVICES	364	529	54
14.0900 TYPING AND RELATED OCCUPATIONS	353	3404	55
16.0113 MECHANICAL TECHNOLOGY	350	645	56
14.0203 PROGRAMMERS	325	660	57
17.0900 COMMERCIAL PHOTOGRAPHY OCCUPATIONS	304	570	58
17.1004 MASONRY	300	621	59
04.0400 FINANCE AND CREDIT	297	668	60
07.0907 MEDICAL EMERGENCY TECHNICIAN	282	622	61
14.0400 INFORMATION COMMUNICATION OCCUPATIONS	278	493	62
04.2000 RETAIL TRADE, OTHER	262	396	63
17.1200 DIESEL MECHANIC	260	451	64
04.0200 APPAREL AND ACCESSORIES	254	423	65
16.0103 ARCHITECTUAL TECHNOLOGY	252	467	66
07.0904 MEDICAL ASSISTANT	242	468	67
04.1200 INDUSTRIAL MARKETING	209	394	68
04.0700 FOOD SERVICES	208	550	69
09.0103 CLOTHING AND TEXTILES	208	1182	70
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	205	819	71
04.1800 RECREATION AND TOURISM	200	349	72
14.0107 ELECTRICAL TECHNOLOGY	199	389	73
16.0111 INDUSTRIAL TECHNOLOGY	198	416	74
09.0109 HOUSING AND HOME FURNISHINGS	195	542	75
17.2900 QUANTITY FOOD OCCUPATIONS	195	523	76
17.2200 MARITIME OCCUPATIONS	190	115	77
16.0109 ELECTROMECHANICAL TECHNOLOGY	189	273	78
07.0305 SURGICAL TECHNOLOGY	184	248	79
17.1100 CUSTODIAL SERVICE	184	310	80

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHERS TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979

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TABLE 9 (continued)

NATIONAL RANKING* OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES AND TITLES	1979	1981	RANK ORDER
17.2399 OTHER METALWORKING OCCUPATIONS	180	899	81
07.0203 MEDICAL LABORATORY ASSISTING	178	406	82
17.1603 PLUMBING AND PIPEFITTING	178	411	83
17.0400 AVIATION OCCUPATIONS	177	345	84
07.0501 RADIOLOGIC TECHNOLOGY	172	282	85
17.350C UPHOLSTERING	170	278	86
17.2307 TOOL AND DIE MAKING	169	219	87
04.1100 HOTEL AND LODGING	161	297	88
01.0200 AGRICULTURAL SUPPLIES/SERVICES	160	390	89
17.0200 APPLIANCE REPAIR	142	303	90
04.0300 AUTOMOTIVE	138	224	91
07.0403 INHALATION THERAPY TECHNOLOGY	133	219	92
09.0200 HOME FURNISHING, EQUIPMENT & SERVICES	131	309	93
01.0600 AGRICULTURAL RESOURCES	130	262	94
04.2100 WHOLESALE TRADE, OTHER	129	160	95
17.2303 MACHINE TOOL OPERATION	121	222	96
01.0700 FORESTRY	119	200	97
04.1900 TRANSPORTATION	118	233	98
16.0104 AUTOMOTIVE TECHNOLOGY	117	244	99
17.2899 OTHER PUBLIC SERVICES	116	539	100
14.0400 PERSONNEL TRAINING AND RELATED OCCUP.	109	327	101
07.0103 DENTAL LABORATORY TECHNOLOGY	104	161	102
09.0100 HOME MANAGEMENT	99	205	103
07.0906 HEALTH AIDE	98	258	104
04.1300 INSURANCE	97	199	105
07.0599 OTHER RADIOLOGIC	97	161	106
07.0102 DENTAL HYGIENIST (ASSOCIATE DEGREE)	95	165	107
04.1500 PERSONAL SERVICES	90	188	108
17.3200 STATIONARY ENERGY SOURCES OCCUPATIONS	91	172	109
17.2305 SHEET METAL	80	255	110
17.2700 PLASTICS OCCUPATIONS	79	125	111
07.0299 OTHER MEDICAL LABORATORY TECHNOLOGY	77	163	112
19.0499 OTHER PERSONAL SERVICES	76	140	113
17.3000 REFRIGERATION	75	149	114
01.040C AGRICULTURAL PRODUCTS	70	126	115
14.0500 MATERIALS SUPPORT, TRANSPORTATION, ETC.	70	107	116
14.0101 AERONAUTICAL TECHNOLOGY	66	114	117
17.0600 BUSINESS MACHINE MAINTENANCE	66	118	118
07.0399 OTHER NURSING	63	398	119
14.0299 OTHER BUSINESS DATA PROCESSING	58	638	120

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHERS TURNOVER
RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979

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TABLE 9 (continued)

NATIONAL RANKING* OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES AND TITLES	1979	1981	RANK ORDER
04.0400 HARDWARE, BUILDING MATERIALS	57	109	121
04.1000 HOME FURNISHINGS	54	91	122
16.0105 CHEMICAL TECHNOLOGY	53	94	123
16.0601 COMMERCIAL PILOT TRAINING	53	114	124
16.0117 SCIENTIFIC DATA TECHNOLOGY	51	107	125
16.0114 METALLURGICAL TECHNOLOGY	49	108	126
16.9900 OTHER	47	83	127
17.2100 INSTRUMENT MAINT. AND REPAIR OCCUP.	43	80	128
16.0112 INSTRUMENTAL TECHNOLOGY	42	70	129
07.0900 MORTUARY SCIENCE	41	54	130
16.0602 FIRE AND FIRE SAFETY TECHNOLOGY	39	277	131
17.0800 COMMERCIAL FISHERY OCCUPATIONS	39	71	132
16.1606 PETROLEUM	34	88	133
16.0110 ENVIRONMENTAL CONTROL TECHNOLOGY	32	107	134
09.0102 CHILD DEVELOPMENT	29	535	135
07.0402 PHYSICAL THERAPY	25	64	136
04.0500 FLORISTRY	24	67	137
17.2400 METALLURGY OCCUPATIONS	24	51	138
17.3400 LEATHER WORKING	21	54	139
16.9902 WATER AND WASTE WATER TECHNOLOGY	20	23	140
16.0604 OCEANOGRAPHIC TECHNOLOGY	17	34	141
07.0199 OTHER DENTAL	15	19	142
07.0499 OTHER REHABILITATION	12	39	143
07.0600 OPHTHALMIC	9	25	144
17.2601 BARBERING	8	43	145
07.0503 NUCLEAR MEDICAL TECHNOLOGY	3	7	146
04.1400 INTERNATIONAL TRADE	1	2	147
07.0401 OCCUPATIONAL THERAPY	0	31	148
17.2000 INDUSTRIAL ATOMIC ENERGY OCCUPATIONS	-0	5	149
17.1600 FABRIC MAINTENANCE SERVICES	-1	24	150
07.0700 ENVIRONMENTAL HEALTH	-4	23	151
16.0603 FORESTRY TECHNOLOGY	-5	32	152
17.0500 BLUEPRINT READING	-49	49	153
07.0800 MENTAL HEALTH TECHNOLOGY	-66	85	154
17.1099 OTHER CONSTRUCTION & MAINT. TRADES	-1130	-253	155
TOTAL FOR ALL PROGRAMS	85771	150654	

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHERS TURNOVER
**RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979

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TABLE 9.1

Grouping Vocational Programs by Their Rank Order of Estimated Needs for Teachers for Fiscal Years 1979 and 1981

	Estimated Number of Teachers Needed by 1979	Percent of Total
Top ranked programs:		
Top 1/3		
Programs ranked 1 to 51	74,159	87
Middle ranked programs:		
Middle 1/3		
Programs ranked 52 to 103	10,685	13
Bottom ranked programs:		
Bottom 1/3		
Programs ranked 104 to 155	927	1
TOTALS	85,771	101 (rounded)

Table 9.1 demonstrates that 87 percent of the estimated total vocational teachers needed are found in programs ranked 1 to 51 in Table 9.

Estimated Needs for Teachers by States

The state perspective concerning the direction and magnitude of teacher needs in particular states is more important to many readers than totals reported for the nation. The data on state estimates of needs are provided in five separate tables. Table 10 provides estimates of the number of teachers needed by each state by program area at the low (7 percent) teacher turnover rate for fiscal years 1979 and 1981. Table 11 assumes a medium (10 percent) teacher turnover rate and Table 12 assumes a high (13 percent) teacher turnover rate.

Tables 10, 11, and 12 list the states along the left side of the table and the program areas across the top of the table. Readers may choose a program area and review the extent of the

needs for teachers for each state or choose a state and review the needs for teachers within each program area. The reader may compare the needs for teachers by state and program areas using low (7 percent), medium (10 percent), or high (13 percent) levels of turnover.

Needs for teachers by specific programs in each state are presented in the appendix in Tables 19 and 20. Table 19 shows the needs for teachers by programs using the normal sequence of program codes and titles for fiscal years 1979 and 1981.

Table 20 shows the estimated number of teachers needed in each state for fiscal years 1979 and 1981 for the highest ranking 20 percent of the programs. Tables 19 and 20 are preceded by an explanation designed to help the reader to efficiently and accurately use the data.

Comparison of Needs for Teachers in Four States Using Actual and Estimated Turnover Rates

An estimated range of turnover rates was used in the model to produce estimates of teacher needs including low (7 percent), medium (10 percent), and high (13 percent) turnover rates. These turnover rates were used for all programs and all states. The actual turnover rates of four states--Oklahoma, Pennsylvania, Colorado, and Iowa--were quite useful in arriving at the estimated range of turnover rates. The question examined here is the comparison of teacher needs in each of the four states when using actual rates for each program area versus the estimated national turnover rates. The medium (10 percent) turnover rate was used in the comparison for each of the four states and in a summary of the four states. These turnover rates were also plugged into the model developed in this study to derive the needs for teachers shown in this report. The comparison includes a discussion and table for each state and a summary with a table.

Oklahoma. Table 13 shows the comparison of Oklahoma's actual and the national estimated turnover (medium, 10 percent) rates, and the need for teachers by program areas using the two rates.

In comparing the actual and estimated turnover rates across program areas, it is evident that the areas which exhibit the greatest discrepancies between percentages are those of distribution, health, consumer and homemaking, and home economics occupational. In each of these areas, the actual turnover rate is approximately twice the estimated turnover rate. The area of office has equal percentage rates and the areas of agriculture and trades and industry show the actual turnover rate to be slightly lower than the estimated turnover rate.

TABLE 10

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND BY VOCATIONAL EDUCATION PROGRAM AREA IN FISCAL YEARS 1979 AND 1981 ASSUMING LOW (7%) TURNOVER RATE

STATES	AGRICULTURE		DISTRIBUTION		HEALTH		CONSUMER & HOMEMAKING		HOME ECONOMICS: OCCUPATIONAL	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
ALABAMA	125	224	19	47	45	74	210	343	-29	1
ALASKA	2	3	8	16	9	18	94	142	11	23
ARIZONA	52	94	249	542	-174	-100	-301	-248	13	58
ARKANSAS	81	178	26	53	41	131	15	113	18	31
CALIFORNIA	458	765	953	1493	627	1108	1425	2022	432	645
COLORADO	10	39	0	42	-11	21	3	71	-4	19
CONNECTICUT	10	30	86	153	-5	25	886	1605	82	129
DELAWARE	4	9	8	12	22	38	42	48	-14	13
FLORIDA	-187	-189	-76	306	-264	14	-1137	-931	-241	-167
GEORGIA	-151	-98	-90	-11	-104	-39	-37	96	-151	-52
HAWAII	31	44	42	55	-3	11	56	77	3	6
IDAHO	32	58	41	61	12	44	30	78	-10	-4
ILLINOIS	234	364	477	769	407	705	18	218	284	436
INDIANA	117	194	-171	-141	796	907	278	429	86	125
IOWA	117	240	97	167	323	553	262	441	828	1012
KANSAS	53	88	-42	40	48	104	176	284	10	38
KENTUCKY	86	145	79	158	143	221	-667	-549	39	65
LOUISIANA	98	165	11	41	65	98	125	204	29	47
MAINE	10	18	-4	3	60	103	-115	-95	-2	9
MARYLAND	47	77	82	148	57	181	-248	-432	40	84
MASSACHUSEYTS	41	67	82	144	122	222	93	177	21	85
MICHIGAN	79	131	389	654	404	680	336	565	147	249
MINNESOTA	230	425	162	288	449	594	255	409	182	307
MISSISSIPPI	138	217	91	154	194	250	162	247	18	40
MISSOURI	91	96	174	318	10	94	175	294	93	172
MONTANA	33	60	10	14	21	29	-6	22	31	36
NEBRASKA	54	85	14	32	139	196	100	232	-30	-24
NEVADA	14	14	-2	4	32	28	88	108	8	11
NEW HAMPSHIRE	16	30	7	17	-2	15	69	108	4	15
NEW JERSEY	-12	3	-8	61	24	250	-1027	-937	-50	-37
NEW MEXICO	27	43	27	45	10	55	31	131	19	36
NEW YORK	113	184	295	410	318	452	-1913	-1674	777	842
NORTH CAROLINA	58	182	173	290	158	367	1151	1270	-504	-316
NORTH DAKOTA	53	93	22	37	34	59	57	115	17	29
OHIO	395	598	282	492	147	348	725	1154	397	595
OKLAHOMA	-50	20	-44	-10	-43	-11	-16	38	40	68
OREGON	212	278	40	94	312	437	-434	-357	18	76
PENSYLVANIA	142	217	98	146	505	505	510	795	109	177
RHODE ISLAND	4	8	18	29	34	63	51	90	8	11
SOUTH CAROLINA	50	84	52	105	43	112	128	203	20	30
SOUTH DAKOTA	35	61	17	29	30	45	-15	6	17	21
TENNESSE	106	142	96	140	148	254	64	153	104	166
TEXAS	275	436	693	1230	580	896	593	1004	329	579
UTAH	19	33	25	45	22	43	-310	-265	35	62
VERMONT	35	40	15	18	0	9	92	119	11	16
VIRGINIA	134	217	320	518	238	350	209	414	48	156
WASHINGTON	160	270	137	277	219	353	-1063	-975	-64	-9
WEST VIRGINIA	45	78	26	43	-1	23	138	246	30	40
WISCONSIN	-187	-94	40	113	206	359	-43	192	-51	17
WYOMING	-6	7	7	21	-11	-2	-99	-91	-4	0
WASHINGTON ,DC	2	2	2	3	9	18	-16	-3	16	19
TOTAL FOR PROGRAM AREAS	3537	6467	5051	9749	6287	11576	704	7024	3312	5999

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 10(CONTINUED)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND BY VOCATIONAL EDUCATION PROGRAM AREA IN FISCAL YEARS 1979 AND 1981 ASSUMING LOW 1991 TURNOVER RATE

STATES	OFFICE		TECHNICAL		TRADES AND INDUSTRY		TOTAL	
	1979	1981	1979	1981	1979	1981	1979	1981
ALABAMA	204	366	6	15	415	756	625	1137
ALASKA	114	241	33	69	104	221	364	743
ARIZONA	-279	-152	-89	-49	223	498	-237	543
ARKANSAS	45	123	-13	-11	133	284	165	396
CALIFORNIA	2470	4203	524	952	2737	4459	9626	15627
COLORADO	34	173	-55	-4	25	142	7	503
CONNECTICUT	454	857	3	7	162	366	1678	3172
DELAWARE	8	30	44	48	442	472	604	903
FLORIDA	-723	-590	-460	-323	-1479	-1210	-4522	-3090
GEORGIA	-660	-274	-159	-100	2	575	-1350	99
HAWAII	116	189	21	33	-46	71	220	904
IDAHO	25	132	3	13	88	174	288	868
ILLINOIS	1121	1768	381	689	1194	1870	4116	6810
INDIANA	213	316	134	143	695	964	2049	2936
IOWA	250	405	131	197	433	734	2441	3739
KANSAS	-54	25	0	5	6	208	182	833
KENTUCKY	201	342	11	424	1764	3025	1656	3851
LOUISIANA	308	459	14	30	373	543	1028	1587
MAINE	-240	-155	-21	-11	92	258	-220	150
MARYLAND	375	450	-142	-84	148	405	-131	845
MASSACHUSETTS	456	760	82	135	670	1036	1497	2604
MICHIGAN	754	1268	355	607	969	1629	3430	4792
MINNESOTA	364	668	210	385	750	1371	2602	4467
MISSISSIPPI	118	227	-33	8	288	531	983	1674
MISSOURI	235	446	108	167	506	936	1482	2513
MONTANA	25	53	15	20	61	108	190	364
NEBRASKA	57	110	-5	-4	34	142	363	769
NEVADA	94	149	41	48	-1	14	276	434
NEW HAMPSHIRE	-156	-114	-4	-2	-92	-39	-160	41
NEW JERSEY	779	1486	275	503	-480	-130	-499	1339
NEW MEXICO	33	104	1	19	84	247	282	690
NEW YORK	1990	2846	161	241	1025	1546	2763	5180
NORTH CAROLINA	244	475	42	194	2098	2875	3400	5339
NORTH DAKOTA	62	94	16	26	103	149	364	601
OHIO	698	1207	146	242	3432	4569	6222	9194
OKLAHOMA	-13	96	0	0	-45	89	-188	192
OREGON	204	412	73	167	665	985	1090	2085
PENSYLVANIA	629	1437	350	587	1484	2277	3925	6141
RHODE ISLAND	105	149	-5	6	134	202	351	454
SOUTH CAROLINA	285	511	87	170	321	433	1060	1884
SOUTH DAKOTA	23	44	-1	-1	53	102	159	307
TENNESSE	256	409	164	241	895	1479	1823	2982
TEXAS	1008	1532	379	636	2049	3456	5892	9767
UTAH	92	156	16	30	145	260	44	394
VERMONT	61	95	0	0	104	138	318	435
VIRGINIA	532	917	199	327	1110	1620	2839	4619
WASHINGTON	332	607	115	183	108	464	-56	1274
WEST VIRGINIA	192	350	6	23	222	222	443	1024
WISCONSIN	-369	-88	187	269	-29	766	-188	1524
WYOMING	-146	-111	-19	-7	-52	-35	-329	-208
WASHINGTON ,DC	112	121	0	0	347	357	472	514
TOTAL FOR PROGRAM AREAS	13388	25597	3372	7316	24679	42709		

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE II

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND BY VOCATIONAL EDUCATION PROGRAM AREA IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (LOW) TURNOVER RATE

STATES	AGRICULTURE		DISTRIBUTION		HEALTH		CONSUMER & HOMEMAKING		HOME ECONOMICS: OCCUPATIONAL	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
ALABAMA	170	299	32	68	59	98	262	429	-11	23
ALASKA	2	3	6	16	10	21	84	161	13	27
ARIZONA	67	120	297	622	-141	-46	-267	-191	33	90
ARKANSAS	122	247	35	68	88	174	66	186	21	33
CALIFORNIA	609	1016	1216	1930	865	1504	1754	2570	550	843
COLORADO	22	64	14	66	9	26	33	121	5	36
CONNECTICUT	15	39	93	167	5	43	965	1714	91	144
DELAWARE	10	16	12	16	32	42	73	91	-8	-24
FLORIDA	-148	-125	53	922	-134	230	-1003	-719	-177	-60
GEORGIA	-116	-41	-29	41	-72	14	27	203	-119	0
HAWAII	39	50	51	90	1	20	67	97	4	9
IDAHO	62	76	46	47	14	64	81	113	-7	0
ILLINOIS	320	507	641	1043	525	903	114	379	390	613
INDIANA	145	238	-152	-109	842	984	347	442	66	144
IOWA	178	241	119	207	416	709	346	581	850	1049
KANSAS	76	126	-22	23	43	128	-212	384	16	33
KENTUCKY	114	192	99	191	174	273	-491	-422	49	79
LOUISIANA	135	211	25	64	84	126	175	287	37	60
MAINE	14	25	-1	8	74	125	-102	-73	1	15
MARYLAND	47	87	98	176	87	245	-481	-482	44	92
MASSACHUSETTS	86	91	110	190	174	312	139	222	71	117
MICHIGAN	109	180	304	946	224	960	436	731	191	321
MINNESOTA	296	535	210	369	510	694	350	568	229	395
MISSISSIPPI	166	246	113	190	216	284	201	328	22	54
MISSOURI	122	148	207	374	48	148	234	391	109	193
MONTANA	43	76	13	19	25	36	10	91	37	63
NEBRASKA	72	114	23	47	166	241	143	220	-27	-19
NEVADA	11	24	0	11	36	81	82	116	11	24
NEW HAMPSHIRE	21	34	10	21	2	23	86	136	6	19
NEW JERSEY	-12	15	21	113	65	348	-926	-633	-43	-25
NEW MEXICO	35	56	32	43	22	75	88	160	24	43
NEW YORK	155	256	361	686	485	934	-1695	-1211	813	902
NORTH CAROLINA	130	202	236	395	278	567	1201	1589	-399	-123
NORTH DAKOTA	48	119	28	43	39	69	24	153	16	33
OHIO	449	711	400	688	243	507	908	1460	495	691
OKLAHOMA	-11	86	-32	1	-227	15	16	98	48	81
OREGON	231	311	88	123	341	486	-384	-278	28	63
PENSYLVANIA	185	269	128	197	372	615	656	1039	139	227
RHODE ISLAND	4	10	21	35	45	80	69	113	8	14
SOUTH CAROLINA	72	122	74	133	85	153	148	320	22	80
SOUTH DAKOTA	43	64	21	37	33	53	0	30	29	42
TENNESSE	132	185	104	169	179	304	119	244	121	184
TEXAS	409	661	846	1485	705	1105	803	1572	404	907
UTAH	27	46	38	60	30	55	-275	-182	42	84
VERMONT	40	48	17	21	4	14	101	117	13	19
VIRGINIA	172	279	407	693	292	423	334	715	106	154
WASHINGTON	196	330	183	353	282	459	-842	-673	-34	62
WEST VIRGINIA	38	48	33	53	8	41	189	362	27	82
WISCONSIN	-131	-5	82	184	257	444	36	316	-20	67
WYOMING	-1	15	10	25	-9	1	-84	-62	-3	1
WASHINGTON ,DC	2	2	3	4	12	14	-11	4	16	20
TOTAL FOR PROGRAM AREAS	5039	8966	6839	12752	8452	15185	4111	13604	4491	7762

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN BY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE II(CONTINUED)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND BY VOCATIONAL EDUCATION PROGRAM AREA IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) TURNOVER RATE

STATES	OFFICE		TECHNICAL		TRADES AND INDUSTRY		TOTAL	
	1979	1981	1979	1981	1979	1981	1979	1981
ALABAMA	253	449	8	18	561	998	1334	2392
ALASKA	138	280	39	80	126	258	432	859
ARIZONA	-207	-32	-62	-3	457	739	157	1700
ARKANSAS	76	126	215	-18	181	355	574	1264
CALIFORNIA	3325	5627	939	1307	3570	5827	12625	20524
COLORADO	117	302	-22	30	99	265	290	960
CONNECTICUT	560	1035	4	9	222	465	1041*	1619
DELAWARE	30	47	70	78	441	507	480	823
FLORIDA	-467	-164	-352	-143	-1098	-642	-3326	-1099
GEORGIA	-510	-24	-123	-41	190	890	-792	1042
HAWAII	139	226	24	38	1	152	322	690
IDAHO	66	142	9	20	125	218	329	713
ILLINOIS	1520	2433	481	855	1627	2591	5619	9324
INDIANA	252	381	136	150	685	1015	2345	3547
IOWA	309	502	160	235	542	816	2419	4534
KANSAS	92	125	4	14	100	364	419	1208
KENTUCKY	295	486	14	409	1855	3190	1990	4409
LOUISIANA	599	612	24	39	443	660	1312	2062
MAINE	-195	-78	-16	-2	133	327	-92	347
MARYLAND	522	895	-106	-5	264	568	317	1534
MASSACHUSETTS	647	1078	114	187	907	1451	2214	3631
MICHIGAN	971	1642	464	792	1226	2104	4461	7500
MINNESOTA	488	874	274	491	952	1709	3309	5624
MISSISSIPPI	153	286	-3	24	382	704	1265	2138
MISSOURI	323	592	126	198	713	1131	1879	3175
MONTANA	40	78	16	22	90	156	270	482
NEBRASKA	84	154	-4	-3	100	251	567	1106
NEVADA	119	185	45	55	19	50	339	643
NEW HAMPSHIRE	-134	-78	-1	0	-65	17	-79	176
NEW JERSEY	1041	1923	332	598	-299	181	206	2518
NEW MEXICO	54	139	7	28	119	305	302	959
NEW YORK	2526	3738	220	358	1363	2129	4238	7445
NORTH CAROLINA	581	702	127	534	3496	5539	4461	7103
NORTH DAKOTA	79	122	21	33	122	180	454	749
OHIO	915	1569	170	282	3856	5243	7396	11151
OKLAHOMA	12	154	0	0	8	212	24	448
OREGON	289	556	102	215	777	1173	1443	2692
PENSYLVANIA	1291	2041	445	945	1805	2813	5020	7965
RHODE ISLAND	118	171	0	15	156	240	419	676
SOUTH CAROLINA	388	484	117	220	484	823	1412	2462
SOUTH DAKOTA	31	37	-1	-1	71	152	220	412
TENNESSE	318	512	197	396	1032	1704	2202	3604
TEXAS	1204	1858	458	775	2525	4247	7356	12710
UTAH	130	220	21	38	201	354	210	431
VERMONT	74	116	0	0	110	164	370	521
VIRGINIA	744	1270	250	410	1302	1940	3594	5873
WASHINGTON	472	841	149	239	288	766	594	2359
WEST VIRGINIA	269	444	10	31	372	813	859	1384
WISCONSIN	-219	162	239	356	235	1109	478	2636
WYOMING	-127	-80	-14	0	-44	-21	-276	-121
WASHINGTON ,DC	114	125	0	0	353	367	48*	541
TOTAL FOR PROGRAM AREAS	19393	35604	4898	9856	32148	55165		

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 12

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND BY VOCATIONAL EDUCATION PROGRAM AREA IN FISCAL YEARS 1979 AND 1981 ASSUMING HIGH (13%) TURNOVER RATE

STATES	AGRICULTURE		DISTRIBUTION		HEALTH		CONSUMER & HOMEMAKING		HOME ECONOMICS: OCCUPATIONAL	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
ALABAMA	215	374	44	89	74	122	314	516	1	45
ALASKA	2	3	11	22	12	24	107	191	14	30
ARIZONA	82	145	342	702	-109	8	-232	-133	42	122
ARKANSAS	142	214	45	84	115	220	114	278	35	48
CALIFORNIA	760	1268	1478	2368	1104	1401	2082	3117	669	1040
COLORADO	39	88	29	91	30	91	63	172	15	54
CONNECTICUT	21	48	103	182	16	60	1021	1930	99	159
DELAWARE	16	22	16	21	34	50	28	80	0	38
FLORIDA	-109	-60	182	758	-4	447	-974	-502	-113	46
GEORGIA	-82	16	-27	93	-40	68	91	311	-88	52
HAWAII	38	56	60	105	7	29	79	119	5	8
IDAHO	51	80	48	73	24	45	72	148	-5	2
ILLINOIS	406	650	805	1316	644	1101	211	540	496	790
INDIANA	170	281	-132	-76	889	1061	415	656	112	169
IOWA	239	442	138	236	509	864	431	721	972	1095
KANSAS	94	158	-2	106	78	155	248	415	20	44
KENTUCKY	143	240	119	225	206	325	-515	-295	54	92
LOUISIANA	153	256	39	87	102	160	225	370	45	74
MAINE	17	31	1	13	87	148	-89	-51	4	20
MARYLAND	66	103	116	204	136	312	-584	-341	68	100
MASSACHUSETTS	71	118	137	236	230	405	173	288	90	151
MICHIGAN	137	229	620	1039	645	1090	536	863	239	394
MINNESOTA	361	445	259	450	570	795	445	727	276	462
MISSISSIPPI	194	311	135	227	238	322	250	408	37	71
MISSOURI	154	201	241	429	86	212	292	489	118	214
MONTANA	52	91	16	24	30	43	29	80	35	47
NEBRASKA	90	144	53	62	193	286	206	405	-23	-12
NEVADA	20	27	3	13	38	87	103	126	13	22
NEW HAMPSHIRE	27	47	13	26	7	32	107	164	7	21
NEW JERSEY	1	26	52	144	105	416	-794	-433	-35	-12
NEW MEXICO	43	69	36	61	34	95	116	189	28	50
NEW YORK	197	326	386	562	656	1221	-1427	-848	848	962
NORTH CAROLINA	202	421	300	500	399	768	1272	1505	-272	70
NORTH DAKOTA	82	141	29	49	45	77	105	191	21	37
OHIO	543	834	517	883	339	667	1092	1766	513	799
OKLAHOMA	27	149	-19	23	-11	42	55	158	56	84
OREGON	251	343	76	153	371	535	-335	-192	39	110
PENSYLVANIA	228	361	159	248	438	725	801	1281	168	277
RHODE ISLAND	7	13	25	42	55	97	79	136	10	16
SOUTH CAROLINA	93	158	91	161	106	189	208	334	33	61
SOUTH DAKOTA	51	87	26	44	41	64	17	51	22	29
TENNESSE	157	227	121	198	209	354	175	339	137	221
TEXAS	544	886	999	1740	830	1313	1024	1736	483	936
UTAH	35	59	43	75	37	68	-240	-138	40	107
VERMONT	45	56	19	24	8	22	114	156	15	22
VIRGINIA	209	341	493	827	326	497	649	916	121	173
WASHINGTON	232	389	229	429	346	565	-821	-471	-8	93
WEST VIRGINIA	70	118	38	63	18	50	241	460	35	65
WISCONSIN	-77	88	125	254	308	529	117	449	6	118
WYOMING	3	24	13	30	-4	6	-76	-43	-2	3
WASHINGTON ,DC	2	3	3	5	15	24	-5	15	19	21
TOTAL FOR PROGRAM AREAS	6534	11458	8633	15722	10629	18804	9526	16299	9425	9525

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 12(CONTINUED)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND BY VOCATIONAL EDUCATION PROGRAM AREA IN FISCAL YEARS 1979 AND 1981 ASSUMING HIGH (13%) TURNOVER RATE

STATES	OFFICE		TECHNICAL		TRADES AND INDUSTRY		TOTAL	
	1979	1981	1979	1981	1979	1981	1979	1981
ALABAMA	303	532	9	20	706	1241	1665	2939
ALASKA	162	320	46	91	148	294	403	975
ARIZONA	-135	88	-34	41	582	980	551	1953
ARKANSAS	107	226	-10	-6	240	454	398	1413
CALIFORNIA	4180	7052	950	1662	4403	7215	15626	25623
COLORADO	194	431	10	104	173	384	553	1419
CONNECTICUT	667	1213	5	10	282	565	2214	4067
DELAWARE	52	104	76	88	492	542	752	946
FLORIDA	-211	261	-244	35	-758	-74	-2131	991
GEORGIA	-360	224	-88	17	378	1204	-216	1985
HAWAII	161	263	28	44	50	234	429	956
IDAHO	117	202	11	23	152	242	431	865
ILLINOIS	1919	3098	581	1021	2059	3312	7121	11929
INDIANA	291	446	143	136	776	1165	2664	3959
IOWA	367	599	189	284	651	1098	3396	5329
KANSAS	2	175	10	23	192	508	444	1583
KENTUCKY	349	609	17	434	1951	3335	2325	4965
LOUISIANA	491	764	29	47	513	777	1597	2535
MAINE	-149	-2	-10	6	173	395	36	560
MARYLAND	470	1141	-70	94	364	732	765	2305
MASSACHUSETTS	837	1395	145	240	1144	1826	2827	4657
MICHIGAN	1202	2015	575	977	1544	2588	5494	9220
MINNESOTA	612	1081	337	597	1153	2044	4012	6801
MISSISSIPPI	189	345	4	40	496	817	1545	2602
MISSOURI	410	738	145	229	830	1325	2276	3937
MONTANA	56	104	19	24	119	205	353	619
NEBRASKA	110	198	-4	-2	165	360	770	1444
NEVADA	134	220	50	63	39	84	402	449
NEW HAMPSHIRE	-112	-41	-2	2	-37	62	5	313
NEW JERSEY	1303	2360	389	693	-118	482	913	3696
NEW MEXICO	75	173	13	38	155	364	500	1039
NEW YORK	3062	4631	278	456	1761	2783	5712	10103
NORTH CAROLINA	517	930	211	475	2895	4203	5524	8872
NORTH DAKOTA	98	149	25	40	140	211	541	895
OHIO	1132	1930	194	323	4241	5917	8571	13108
OKLAHOMA	58	216	0	0	72	324	238	1007
OREGON	373	698	131	264	390	1360	1796	3271
PENSYLVANIA	1654	2646	559	903	2127	3349	6114	9790
RHODE ISLAND	131	193	4	20	179	277	490	794
SOUTH CAROLINA	496	862	147	270	600	1014	1772	3051
SOUTH DAKOTA	39	71	-1	0	89	161	284	517
TENNESSE	379	615	230	352	1169	1932	2577	4237
TEXAS	1400	2185	541	914	3000	5040	9821	14653
UTAH	169	284	27	48	257	447	377	950
VERMONT	87	138	0	0	135	190	423	608
VIRGINIA	956	1624	300	494	1494	2260	4347	7132
WASHINGTON	612	1074	183	295	469	1067	1245	3441
WEST VIRGINIA	305	538	15	39	332	404	1075	1746
WISCONSIN	-68	412	291	442	441	1452	1146	3744
WYOMING	-108	-48	-10	6	-36	-8	-222	-30
WASHINGTON ,DC	117	130	0	0	359	377	508	573
TOTAL FOR PROGRAM AREAS	25400	45612	6425	12396	39621	67616		

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 13

Comparison of Estimated Number of Teachers Needed*
in Program Areas for Fiscal Years 1979 and 1981
by Actual and Estimated Turnover Rates for

OKLAHOMA

Program Area Codes and Titles	Turnover Rates		1979 Needs for Teachers		1981 Needs for Teachers	
	Actual	Estimated	Actual	Estimated	Actual	Estimated
01.0000 Agriculture	9%	10%	-24	-11	62	84
04.0000 Distribution	21%	10%	15	-32	79	1
07.0000 Health	19%	10%	76	-27	96	15
09.0100 Consumer and Homemaking	18%	10%	115	19	259	99
09.0200 Home Economics Occupational Preparation	18%	10%	69	48	117	81
14.0000 Office	10%	10%	22	22	156	156
16.0000 Technical						
17.0000 Trades and Industry	7%	10%	-62	5	100	212
TOTAL			211	24	869	648

* Denotes number of teachers needed beyond the number of teachers in FY 1976 due to projected enrollment and teacher turnover.

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As a result, four of the program areas display considerable differences in the number of teachers needed, using the actual and estimated turnover rates.

The total need for teachers also indicates considerable differences for fiscal years 1979 and 1931. For fiscal year 1979, the need for teachers was 221 using the actual turnover rate compared to 24 using the estimated rate. When viewed in relation to the number of teachers in fiscal year 1976, the percentage difference for both 1979 and 1981 is approximately 8 percent.

Pennsylvania. Table 14 describes the comparison of turnover rates and needs for teachers for Pennsylvania.

Observation of program area turnover rates indicates highest discrepancy in agriculture which has 17 percent actual versus 10 percent estimated turnover. Consumer and homemaking, home economics occupational, health, and distribution have actual turnover rates slightly higher than the estimated turnover rates. The areas of office, technical, and trades and industry show actual turnover rates which are slightly lower than the estimated turnover rates. The comparison of resulting numbers of total teachers needed is somewhat close, since there is a fairly even distribution of actual turnover rates greater than and less than the estimated turnover rates. For fiscal year 1979, the need for teachers was 4,879 using the actual turnover rate compared to 5,020 using the estimated rate. For fiscal year 1981, the need for teachers using the actual turnover rate was 7,731 compared to 7,965 using the estimated rate. When viewed in relation to the number of teachers in fiscal year 1976, the percentage of differences for both 1979 and 1981 is less than 1 percent.

Colorado. Table 15 shows the comparison for Colorado. Actual and estimated turnover rates vary quite dramatically. The actual turnover rate for agriculture is twice the estimated turnover rate. Distribution and trades and industry have equal, or approximately equal, actual and estimated turnover rates. Health and office have actual turnover rates less than half of the estimated turnover rates. As a result, the areas of agriculture, health, and office have considerable discrepancies between the numbers of teachers needed using actual and estimated turnover rates. The total numbers of teachers needed also vary considerably. For fiscal year 1979, the need for teachers was 116 using the actual turnover rate compared to 280 using the estimated rate. For fiscal year 1981, the need for teachers was 505 using the actual turnover rate compared to 960 using the estimated rate. When reviewed in relation to the number of teachers in fiscal year 1976, the percentage difference for 1979 is 5 percent and for 1981 is 14 percent.

TABLE 14

Comparison of Estimated Number of Teachers Needed* in Program Areas for Fiscal Years 1979 and 1981 by Actual and Estimated Turnover Rates for

PENNSYLVANIA

Program Area Codes and Titles	Turnover Rates		1979 Needs for Teachers		1981 Needs for Teachers	
	Actual	Estimated	Actual	Estimated	Actual	Estimated
01.0000 Agriculture	17%	10%	285	185	456	289
04.0000 Distribution	11%	10%	138	128	214	197
07.0000 Health	12%	10%	416	372	689	615
09.0100 Consumer and Homemaking	14%	10%	850	656	1361	1038
09.0200 Home Economics Occupational Preparation	13%	10%	168	138	277	227
14.0000 Office	8%	10%	1049	1291	1638	2041
16.0000 Technical	8%	10%	382	445	640	745
17.0000 Trades and Industry	8%	10%	1591	1805	2456	2813
TOTAL			4879	5020	7731	7965

* Denotes number of teachers needed beyond the number of teachers in FY 1976 due to projected enrollment and teacher turnover.

TABLE 15

Comparison of Estimated Number of Teachers Needed*
in Program Areas for Fiscal Years 1979 and 1981
by Actual and Estimated Turnover Rates for

COLORADO

Program Area Codes and Titles	Turnover Rates		1979 Needs for Teachers		1981 Needs for Teachers	
	Actual	Estimated	Actual	Estimated	Actual	Estimated
01.0000 Agriculture	20%	10%	74	25	146	64
04.0000 Distribution	10%	10%	14	14	66	66
07.0000 Health	4%	10%	-33	9	-14	56
09.0100 Consumer and Homemaking	-	10%	-	33	-	121
09.0200 Home Economics Occupational Preparation	-	10%	-	5	-	36
14.0000 Office	3%	10%	-63	117	1	302
16.0000 Technical	-	10%	-	-22	-	50
17.0000 Trades and Industry	11%	10%	124	99	306	265
TOTAL			116	280	505	960

* Denotes number of teachers needed beyond the number of teachers in FY 1976 due to projected enrollment and teacher turnover.

Iowa. Table 16 describes the comparison for the state of Iowa. In comparing the actual and estimated turnover rates in program areas, all areas have rates which fall within two points of each other. Office has an actual turnover rate slightly above the estimated turnover rate. Distribution, consumer and homemaking, and home economics occupational have equal actual and estimated turnover rates. Agriculture, health, and trades and industry have actual turnover rates slightly lower than the estimated turnover rates. The resulting number of teachers needed, using the two turnover rates, is fairly consistent with individual program areas for both 1979 and 1981. The total number of teachers needed for fiscal year 1979 was 2,638 using the actual turnover rate compared to 2,918 using the estimated rate. For fiscal year 1981, the need for teachers was 4,099 using the actual turnover rate compared to 4,534 using the estimated rate. When viewed in relation to the number of teachers in fiscal year 1976, the percentage difference for fiscal year 1979 is 5 percent and for fiscal year 1981 is 9 percent.

Four States. The data from the four individual states (Oklahoma, Pennsylvania, Colorado, and Iowa) were totaled to view it as a quasi-sample. In choosing these states, no attempt was made to select a nationally representative sample. There is, however, limited insight gained toward the comparison of actual and estimated turnover rates on the national level.

Table 17 shows the comparison for four states. In comparing the group mean turnover rates, it is seen that in the areas of agriculture, distribution, consumer and homemaking, and home economics occupation, the mean actual turnover rates are slightly greater than the mean estimated turnover rates. The mean actual turnover rate for health is almost equal to the mean estimated turnover rate. The areas of office, technical, and trades and industry have mean actual turnover rates slightly less than the mean estimated turnover rates. The fairly even distributions of mean actual turnover rates of program areas above and below the mean estimated turnover rate are reflected in the closeness of grand mean actual turnover rate (11.2 percent) and the grand mean estimated turnover rate (10 percent). The deviations in the sum of the needs for the four states, using the mean actual and estimated rates, vary relative to the aforementioned pattern. The total number of teachers needed for fiscal year 1979 is 7,844 using the actual turnover rates compared to 8,242 using the estimated turnover rate. For fiscal year 1981, the total number of teachers needed is 13,204 using actual turnover rates compared to 14,107 using estimated turnover rate. The percentage difference between the totals for fiscal year 1979 and 1981 is approximately 3 percent.

TABLE 16

Comparison of Estimated Number of Teachers Needed*
in Program Areas for Fiscal Years 1979 and 1981
by Actual and Estimated Turnover Rates for

IOWA

Program Area Codes and Titles	Turnover Rates		1979 Needs for Teachers		1981 Needs for Teachers	
	Actual	Estimated	Actual	Estimated	Actual	Estimated
01.0000 Agriculture	8%	10%	137	178	273	341
04.0000 Distribution	10%	10%	117	117	202	202
07.0000 Health	8%	10%	354	416	605	708
09.0100 Consumer and Homemaking	10%	10%	346	346	581	581
09.0200 Home Economics Occupational Preparation	10%	10%	850	850	1049	1049
14.0000 Office	11%	10%	328	309	534	502
16.0000 Technical	-	10%	-	160	-	235
17.0000 Trades and Industry	9%	10%	506	542	855	916
TOTAL			2638	2918	4099	4534

* Denotes number of teachers needed beyond the number of teachers in FY 1976 due to projected enrollment and teacher turnover.

TABLE 17

Comparison of Mean Turnover Rates and Sum of Number of Teachers Needed* in Program Areas for Fiscal Years 1979 and 1981 for Four States**

Program Area Codes and Titles	Mean Turnover Rates		1979 Sum of Needs for Teachers		1981 Sum of Needs for Teachers	
	Actual	Estimated	Actual	Estimated	Actual	Estimated
01.0000 Agriculture	13.5%	10%	472	377	937	778
04.0000 Distribution	13%	10%	284	227	561	466
07.0000 Health	10.8%	10%	813	770	1376	1394
09.0100 Consumer and Homemaking	14%	10%	1311	1054	2201	1839
09.0200 Home Economics Occupational Preparation	13.7%	10%	1087	1041	1443	1393
14.0000 Office	8%	10%	1336	1739	2329	3001
16.0000 Technical	8%	10%	382	583	640	1030
17.0000 Trades and Industry	8.8%	10%	2159	2451	3717	4206
(Grand Mean) TOTAL	11.2%	10%	7844	8242	13204	14107

* Denotes number of teachers needed beyond the number of teachers in FY 1976 due to projected enrollment and teacher turnover.

** Four states are Iowa, Oklahoma, Colorado, and Pennsylvania.

Summary of National and State Level Needs for Teachers

There is a national need for additional teachers in all program areas of vocational education. The estimated number of additional teachers needed from fiscal year 1977 to fiscal year 1981 ranges from 117,336 to 200,433, which is one-third to two-thirds the total number of vocational education teachers in fiscal year 1976. This is a 30 percent to 60 percent increased need for teachers due to changes in enrollment and turnover of teachers. The estimated need for the shorter period of fiscal years 1977 through fiscal year 1979 is 60,330 to 110,189 or 20 percent to 30 percent additional teachers beyond the number of teachers in fiscal year 1976. The program areas in decreasing order of estimated number of additional teachers needed by fiscal year 1979 are trade and industry, office, health, distribution, agriculture, technical, home economics occupational, and consumer and homemaking. The needs for teachers by fiscal year 1981 change the decreasing order slightly as follows: trade and industry, office, health, technical, consumer and homemaking, distribution, agriculture, home economics occupational.

By specific program, there is an estimated need for additional teachers in all programs except 17.1099, other construction and maintenance trades from fiscal year 1977 through fiscal year 1981. More programs had no need for additional teachers from fiscal year 1977 through 1979 including 07.0401 occupational therapy, 17.200 industrial atomic energy occupations, 17.1600 fabric maintenance services, 07.0700 environmental health, 16.0603 forestry technology, 17.0500 blueprint reading, 07.0800 mental health technology, and 17.1099 other construction and maintenance trades. The national ranking of programs by estimated number of teachers needed was provided earlier in Table 9.

On the state level, assuming medium turnover rates as used in Table 11, across all program areas, all states showed a need for teachers for fiscal year 1979 except Florida, Georgia, Maine, New Hampshire, and Wyoming. In fiscal year 1981, only Florida and Wyoming were estimated not to have any needs for teachers totally. All states had estimated needs for teachers in one or more program areas. The majority of teacher needs in each state was in the 25 to 40 programs ranked highest in need for teachers. These programs are shown for each state in Table 20 in the Appendix.

RECOMMENDATIONS

As the nation's vocational education offerings increase at varying degrees within program areas, it is important that needs for teachers be identified in advance so that teachers can be provided to meet the need. While it is generally acknowledged that the need for these professionals is a reality, the extent to which planning and policy-related decisions can be made depends on feasible trend forecasting and predictions of the future teacher needs in specific program areas. Various studies have been conducted to define the problem at hand; however, little future-oriented data have been generated.

The experiences associated with the conduct of this research and the data compiled provide several perspectives on the data, the methodology used in producing estimates, and the needs for teachers. These perspectives are presented here and recommendations are offered for consideration by the U. S. Office of Education, state administrators of vocational education, and researchers who conduct future investigations in the area of needs for vocational education teachers.

Data

Reporting of Previous and Projected Enrollments

States are required to use forms provided by the U. S. Office of Education in reporting enrollments at the end of a fiscal year. Judgments are exercised by states on whether to report separately programs with small enrollments or to combine the enrollment with a larger program, e.g., technical combined with trades and industry, and whether to report programs offered in special settings or institutions, e.g., programs with CETA linkage, correctional institutions, and special needs populations. Programs that receive federal and state reimbursement change periodically by state as amounts and matching requirements of federal funds change. A vocational education program listed in an annual report may not be included in the subsequent state plan for reimbursement.

State plans are prepared by each state annually as well as for a five-year period. Considerable variation exists in the manner in which plans are reported, particularly projected enrollment. Some states provide projections of enrollment by program areas (two-digit) level while the majority provide projected enrollment by programs (six-digit) level.

1. It is recommended that more specific guidelines be used by the U. S. Office of Education in reporting previous enrollments and projected enrollments so that data can be aggregated at the regional and national levels for planning purposes.

2. A standard format should be developed for states to use in indicating projected enrollment data in the state plans. The format should include program titles, codes, agencies offering the programs, e.g., secondary, postsecondary, special nonschool settings, projected enrollment, and the number of teachers required to serve the projected enrollment, given previous student-teacher ratios.

3. Classifications of vocational education students should be standardized, and should include grade and nongrade programs such as CETA related programs and penal institution programs.

Methods for Producing Estimates of Teachers Needed

Turnover Rates

Turnover rates account for approximately one-half the annual needs for teachers with changes in enrollment accounting for the balance of teachers needed. A more precise method of determining vocational teacher turnover rates is a requirement for producing more accurate estimates of teacher needs by program and program areas at the state and national levels.

4. It is recommended that research be undertaken to determine reliable turnover rates for vocational education teachers nationally by program areas (two digit level) and for programs (six digit level). The thrust of this new research could include efforts such as (1) an application of the model used in this study on data from a recent year, e.g., fiscal year 1977 and (2) development of an econometric model taking into consideration work of the Department of Labor in developing econometric projection techniques.

Needs for Teachers

Planning for Needed Teachers

Because the estimated need for additional teachers by fiscal year 1981 is between 117,000 and 200,000 teachers, one-third to two-thirds of the total number of teachers reported in fiscal year 1976, improved planning is needed to assure that the number of teachers needed will be available. Further, there are programs with needs which occur at a fast rate presenting both intense and immediate needs.

5. It is recommended that state plans include a comprehensive system for teacher training. From an economic standpoint, the components of the system should be developed under leadership and support of the U. S. Office of Education to avoid duplicative developmental efforts. Components of the system should include such factors as turnover, enrollment changes, recruitment, and training and should have contingencies for meeting fast increases in needs.

6. A standard definition of "need for teachers" should be developed for use by states who formulate their estimates of needs and for use by the U. S. Office of Education. The definition of need used in this study is a viable option.

Programs with Greatest Need

The program areas with the greatest number of teachers needed nationwide by fiscal years 1979 and 1981 are trade and industry, office, and health. Needs for these three program areas represent 73 percent of the total need nationally. Further, there are programs within most program areas which collectively account for over 80 percent of the needs for teaching personnel.

7. State projections of enrollment should be described relative to occupational employment projections by the Department of Labor, the availability of public and private training facilities and other related data.

8. It is recommended that initial efforts toward planning for needed teachers address the needs of specific programs with the greatest teacher need. Subsequent planning efforts should address all teacher needs.

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APPENDIX

PROGRAM CODES AND TITLES

01.0000	AGRICULTURE
01.0100	Agricultural Production
01.0200	Agricultural Supplies/Services
01.0300	Agricultural Mechanics
01.0400	Agricultural Products
01.0500	Ornamental Horticulture
01.0600	Agricultural Resources
01.0700	Forestry
01.9900	Other*
04.0000	DISTRIBUTION
04.0100	Advertising Services
04.0200	Apparel and Accessories
04.0300	Automotive
04.0400	Finance and Credit
04.0500	Floristry
04.0600	Food Distribution
04.0700	Food Services
04.0800	General Merchandise
04.0900	Hardware, Building Materials
04.1000	Home Furnishings
04.1100	Hotel and Lodging
04.1200	Industrial Marketing
04.1300	Insurance
04.1400	International Trade
04.1500	Personal Services
04.1600	Petroleum
04.1700	Real Estate
04.1800	Recreation and Tourism
04.1900	Transportation
04.2000	Retail Trade, Other
04.3100	Wholesale Trade, Other
04.9900	Other*

* Other - Specify by title new and emerging occupations and cluster programs.

07.0000	HEALTH
07.0101	Dental Assistant
07.0102	Dental Hygienist (Associate Degree)
07.0103	Dental Laboratory Technology
07.0199	Other Dental
07.0203	Medical Laboratory Assisting
07.0299	Other Medical Laboratory Technology
07.0301	Nursing (Associate Degree)
07.0302	Practical (Vocational) Nursing
07.0303	Nursing Assistant (Aide)
07.0305	Surgical Technology
07.0399	Other Nursing
07.0401	Occupational Therapy
07.0402	Physical Therapy
07.0499	Other Rehabilitation
07.0501	Radiologic Technology
07.0503	Nuclear Medical Technology
07.0599	Other Radiologic
07.0600	Ophthalmic
07.0700	Environmental Health
07.0800	Mental Health Technology
07.0903	Inhalation Therapy Technology (Respiratory)
07.0904	Medical Assistant
07.0906	Health Aide
07.0907	Medical Emergency Technician
07.0909	Mortuary Science
07.9900	Other*
09.0100	CONSUMER AND HOMEMAKING
09.0101	Comprehensive Homemaking
09.0102	Child Development
09.0103	Clothing and Textiles
09.0104	Consumer Education
09.0106	Family Relations
09.0107	Food and Nutrition
09.0108	Home Management
09.0109	Housing and Home Furnishings
09.0199	Other*

* Other - Specify by title new and emerging occupations and cluster programs.

09.0200 OCCUPATIONAL PREPARATION
09.0201 Care and Guidance of Children
09.0202 Clothing Management, Production and Services
09.0203 Food Management, Production and Services
09.0204 Home Furnishing, Equipment and Services
09.0205 Institutional and Home Management and Services
09.0299 Other*

14.0000 OFFICE
14.0100 Accounting and Computing Occupations
14.0201 Computer and Console Operators
14.0203 Programmers
14.0299 Other Business Data Processing
14.0300 Filing, Office Machines, Clerical Occupations
14.0400 Information Communication Occupations
14.0500 Materials Support, Transportation, etc.
14.0600 Personnel Training and Related Occupations
14.0700 Stenographer, Secretarial and Related Occupations
14.0800 Supervisory and Administrative Management Occupations
14.0900 Typing and Related Occupations
14.0900 Other*

16.0000 TECHNICAL
16.0101 Aeronautical Technology
16.0103 Architectural Technology
16.0104 Automotive Technology
16.0105 Chemical Technology
16.0106 Civil Technology
16.0107 Electrical Technology
16.0108 Electronic Technology
16.0109 Electromechanical Technology
16.0110 Environmental Control Technology
16.0111 Industrial Technology
16.0112 Instrumental Technology
16.0113 Mechanical Technology
16.0114 Metallurgical Technology
16.0117 Scientific Data Technology
16.0601 Commercial Pilot Training
16.0602 Fire and Fire Safety Technology
16.0603 Forestry Technology
16.0604 Oceanographic Technology
16.0605 Police Science
16.9901 Air Pollution Technology
16.9902 Water and Waste Water Technology
16.9900 Other*

* Other - Specify by title new and emerging occupations and cluster programs.

17.0000 TRADES AND INDUSTRY
17.0100 Air Conditioning
17.0200 Appliance Repair
17.0301 Body and Fender Repair
17.0302 Auto Mechanics
17.0399 Other Automotive
17.0400 Aviation Occupations
17.0500 Blueprint Reading
17.0600 Business Machine Maintenance
17.0700 Commercial Art Occupation
17.0800 Commercial Fishery Occupations
17.0900 Commercial Photography Occupations
17.1001 Carpentry
17.1002 Electricity
17.1004 Masonry
17.1007 Plumbing and Pipefitting
17.1099 Other Construction and Maintenance Trades
17.1100 Custodial Service
17.1200 Diesel Mechanic
17.1300 Drafting Occupations
17.1400 Electrical Occupations
17.1500 Electronic Occupations
17.1600 Fabric Maintenance Services
17.1700 Foremanship Supervisor and Management Development
17.1900 Graphic Arts Occupations
17.2000 Industrial Atomic Energy Occupations
17.2100 Instrument Maintenance and Repair Occupations
17.2200 Maritime Occupations
17.2302 Machine Shop
17.2303 Machine Tool Operation
17.2305 Sheet Metal
17.2306 Welding and Cutting
17.2307 Tool and Die Making
17.2399 Other Metalworking Occupations
17.2400 Metallurgy Occupations
17.2601 Barbering
17.2602 Cosmetology
17.2699 Other Personal Services
17.2700 Plastics Occupations
17.2801 Fireman Training
17.2802 Law Enforcement Training
17.2899 Other Public Services
17.2900 Quantity Food Occupations
17.3000 Refrigeration
17.3100 Small Engine Repair
17.3200 Stationary Energy Sources Occupations
17.3300 Textile Production and Fabrication
17.3400 Leather Working
17.3500 Upholstering
17.3600 Woodworking Occupations
17.9900 Other

TABLE 18

Estimated Number of Students and Teachers on National Level by Vocational Education Program for FY 1976, FY 1979, and FY 1981 Assuming Medium (10 Percent) Turnover Rate

Table 18 Explained

Table 18 is a national summary of students and teachers by specific programs, e.g., 04.1700 real estate, and totals for each program area, e.g., 14.0000 distribution. Included are the total number of students and teachers reported nationally in 1976, the total student enrollment projected for fiscal years 1979 and 1981, the calculated number of teachers required for the projected enrollment for fiscal years 1979 and 1981 given the student-teacher ratio of fiscal year 1976, and the estimated teachers needed to meet this demand given both changes in enrollment and a medium (10 percent) teacher turnover rate.

Table 18 is read by first finding the vocational program code of interest at the left side* and reading the data in cells to the right of the program. As an example, 04.1700 real estate shows an increasing number of students from 131,943 in fiscal year 1976 to 145,826 in fiscal year 1979, to 159,567 in fiscal year 1981. A corresponding increase is shown in the number of teachers from 2,911 in fiscal year 1976, to 3,126 in fiscal year 1979, to 3,402 in fiscal year 1981. The difference in the number of teachers by years is the increase due to growth in projected enrollment. The teachers needed due to change in enrollment and turnover annually are 1,088 totally for fiscal years 1977 through 1979, and 3,402 totally for fiscal years 1977 through 1981.

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* A list of program codes and titles is provided in the front of the appendix for reference by readers who are unfamiliar with program codes.

TABLE 18

ESTIMATED NUMBER OF STUDENTS AND TEACHERS ON NATIONAL LEVEL BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981 ASSUMING MEDIUM (10%) TURNOVER RATE

PROGRAM CODES	1976		1979			1981		
	STUDENTS	TEACHERS	STUDENTS	TEACHERS	TEACHERS NEEDED*	STUDENTS	TEACHERS	TEACHERS NEEDED*
01.0000	1054745	16637	1030788	16685	5039	1065754	17284	8966
01.0100	571028	8715	524566	8347	2244	533401	8542	4181
01.0200	29452	518	30474	520	160	31977	543	290
01.0300	147579	2327	138501	2242	610	144707	2335	1164
01.0400	15450	232	13314	233	70	14515	246	126
01.0500	117843	2076	119492	2152	701	125064	2235	1199
01.0600	28305	542	26482	509	130	28425	532	262
01.0700	19763	336	19192	352	119	20123	370	200
01.9900	125325	1884	159606	2323	1006	167424	2469	1520
04.0000	891154	19817	937511	20780	6838	1027014	22409	12733
04.0100	15547	346	32109	774	536	36044	849	691
04.0200	25182	556	30339	645	254	33013	702	423
04.0300	9152	202	12398	282	138	14286	326	224
04.0400	55059	1222	51008	1147	287	56953	1281	648
04.0500	8025	167	6291	141	24	6899	152	67
04.0600	35837	777	47417	1023	491	51111	1111	723
04.0700	47325	1071	42171	958	209	49144	1094	880
04.0800	282538	6578	299760	7031	2425	319825	7424	4178
04.0900	7386	176	7371	180	57	9098	199	109
04.1000	4370	103	5497	129	44	5115	141	91
04.1100	18192	412	20127	450	161	22602	505	297
04.1200	26696	599	28518	629	209	31480	681	394
04.1300	14293	331	15104	330	97	16977	366	199
04.1400	726	17	564	13	1	647	14	2
04.1500	18131	404	17349	374	90	17957	389	188
04.1600	4736	106	5012	108	34	5441	120	66
04.1700	131943	2911	145826	3126	1048	159567	3402	1946
04.1800	24119	511	26493	557	200	29333	609	349
04.1900	18013	397	19246	398	118	19569	434	233
04.2000	17159	429	24141	556	262	26776	610	396
04.3100	3841	76	7951	181	127	8632	200	160
04.9900	122884	2506	117346	2420	666	133156	2752	1499
07.0000	682742	24106	698801	25328	8452	751309	27240	15183
07.0101	21167	799	25847	960	396	28247	1140	648
07.0102	6413	248	6660	262	95	7540	304	165
07.0103	4345	166	5944	217	104	6475	265	161
07.0199	254	11	730	23	15	788	26	19
07.0203	15867	593	15111	596	179	20103	769	406
07.0299	7153	296	6759	284	77	7278	311	153
07.0301	104939	4074	110693	4420	1471	114552	4486	2548

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 18 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS ON NATIONAL LEVEL BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981 ASSUMING MEDIUM (10%) TURNOVER RATE

PROGRAM CODES	1976		1979			1981		
	STUDENTS	TEACHERS	STUDENTS	TEACHERS	TEACHERS NEEDED*	STUDENTS	TEACHERS	TEACHERS NEEDED*
07.0302	97499	3695	95793	3368	794	99477	3496	1645
07.0303	116609	4077	99632	3632	790	104779	3872	1935
07.0305	3072	113	6216	264	184	7220	311	249
07.0399	42648	1117	23575	848	63	26741	961	398
07.0401	2658	102	1858	74	0	2105	82	31
07.0402	3099	120	3052	110	25	3491	126	64
07.0499	1548	50	1190	47	12	1457	60	33
07.0501	10126	395	11091	447	172	12078	487	292
07.0503	192	8	290	11	3	309	12	7
07.0599	5438	249	5891	269	97	6245	285	161
07.0600	1691	64	1460	56	0	1572	60	25
07.0700	2513	97	1537	44	-4	1776	73	23
07.0800	15736	603	9545	359	-66	9279	388	85
07.0903	9748	327	9315	360	133	9993	392	219
07.0904	24898	841	24809	832	242	26562	996	469
07.0906	15234	622	11704	533	-98	12644	570	258
07.0907	54181	1652	41803	1437	282	42004	1453	622
07.0909	700	27	1346	59	41	1503	67	54
07.9900	116014	3749	197794	5780	3140	203176	6281	4401
09.0100	3448105	37909	2610579	30647	4111	2799595	32566	13604
09.0101	1594421	17153	1135529	12825	817	1250811	13958	5382
09.0102	192514	2191	129707	1566	29	134942	1631	535
09.0103	333839	4062	236039	3045	208	245029	3208	1182
09.0104	154317	1799	151525	1954	591	159689	1969	1069
09.0106	175898	1959	197100	2135	761	204339	2212	1232
09.0107	329265	3915	256108	3252	512	269276	3421	1467
09.0108	41019	420	36617	395	99	38274	411	203
09.0105	121035	1462	97396	1220	195	102166	1272	542
09.0199	505877	4953	365893	4272	911	394099	4473	1999
09.0200	468540	11779	442974	12615	4371	473262	13454	7742
09.0201	144126	3761	142812	3819	1185	151972	4114	2221
09.0202	105327	2376	72493	1866	205	76764	2007	819
09.0203	136034	3539	134456	3662	1187	142701	3925	2155
09.0204	32273	749	24721	653	131	25565	686	309
09.0205	12082	366	22973	620	364	25382	709	529
09.0299	38698	991	49910	2107	1413	56490	2357	1861
14.0000	3085558	66734	3045465	66109	19393	3177052	68076	35604
14.0100	508245	11037	492876	10573	2848	509809	10920	5395
14.0201	41747	1019	66293	1561	852	63200	1616	1107
14.0203	43242	956	46373	993	32	49570	1045	568

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 18 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS ON NATIONAL LEVEL BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981 ASSUMING MEDIUM (10%) TURNOVER RATE

PROGRAM CODES	1976		1979			1981		
	STUDENTS	TEACHERS	STUDENTS	TEACHERS	TEACHERS NEEDED*	STUDENTS	TEACHERS	TEACHERS NEEDED*
14.0299	109524	2307	80448	1675	58	86718	1793	638
14.0300	592016	12831	652635	13749	4766	677694	14234	7816
14.0400	41673	834	42645	863	279	44702	909	493
14.0500	6843	142	7480	172	70	7987	180	107
14.0600	46216	957	40283	781	109	41537	911	327
14.0700	694801	15482	637950	14165	3333	663504	14696	6947
14.0800	147433	3402	154118	3207	909	161640	3460	1757
14.0900	653696	13578	457324	9856	353	472944	10198	3404
14.9900	210122	4189	366763	9422	5494	394435	9104	7011
16.0000	482869	16964	473646	16774	4899	519117	19343	9856
16.0101	5279	167	5220	183	66	6557	197	114
16.0103	25090	827	25703	830	252	27209	954	467
16.0104	10725	426	10099	415	117	10917	457	244
16.0105	5034	165	5140	170	53	5290	176	94
16.0106	28603	949	33177	1067	401	35692	1137	665
16.0107	24030	736	23218	719	199	24475	761	389
16.0108	84061	3034	84197	3121	1001	88649	3294	1774
16.0109	6380	242	11616	359	189	12929	393	273
16.0110	8029	319	6526	259	32	6860	269	107
16.0111	20829	794	20174	751	199	22234	819	416
16.0112	3302	99	3743	109	42	4123	120	70
16.0113	28586	1070	29556	1096	350	31821	1179	645
16.0114	4319	194	3558	187	60	3939	209	108
16.0117	16538	617	14130	482	51	14803	502	197
16.0601	8211	257	7491	219	53	7982	235	114
16.0602	24607	965	16762	716	39	17798	741	277
16.0603	4174	146	3197	97	25	3363	103	32
16.0604	1743	55	1910	57	17	2109	64	24
16.0605	91385	3264	75285	2685	402	78988	2814	1181
16.9900	62064	2131	98391	3070	1580	95749	3379	2310
16.9901	39	2	425	21	20	704	24	23
16.9902	3359	159	3707	159	47	3782	164	53
17.0000	3090601	83029	3318430	90268	32148	3541659	96692	55165
17.0100	77404	2133	69433	1983	492	73568	2107	1042
17.0200	19736	547	19492	526	142	20472	593	303
17.0301	78910	2214	76500	2229	679	79398	2293	1186
17.0302	363779	9901	313944	8910	1995	325929	9162	4215
17.0399	71640	1867	107829	2751	1446	113391	2921	1998
17.0400	26009	663	25244	638	177	26394	683	345
17.0500	12715	347	7444	199	-47	9452	226	47
17.0600	4480	117	5246	149	66	6203	179	118

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 18 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS ON NATIONAL LEVEL BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981 ASSUMING MEDIUM (10%) TURNOVER RATE

PROGRAM CODES	1976		1979			1981		
	STUDENTS	TEACHERS	STUDENTS	TEACHERS	TEACHERS NEEDED*	STUDENTS	TEACHERS	TEACHERS NEEDED*
17.0700	48675	1276	50681	1360	465	51561	1376	737
17.0800	3577	97	3719	107	39	4137	116	71
17.0900	30621	756	34100	840	304	37838	947	570
17.1001	152156	4212	159276	4503	1552	159888	4515	2404
17.1002	64944	1906	59223	1773	439	62823	1898	945
17.1004	43784	1249	41045	1182	300	43575	1252	621
17.1007	43532	1257	34566	1044	178	37248	1143	511
17.1099	139977	3933	58405	1620	-1130	61847	1710	-283
17.1100	17339	469	18912	506	184	20197	541	310
17.1200	21509	588	23718	669	260	26182	750	451
17.1300	150389	3926	156766	4121	1376	160103	4204	2236
17.1400	97204	2537	86089	2319	539	81273	2467	1190
17.1500	138933	3752	139229	3763	1131	149099	4086	2206
17.1600	4364	111	2825	76	-1	3022	83	24
17.1700	112974	2716	102194	2378	491	105902	2465	1105
17.1900	100831	2625	99678	2622	778	104780	3766	1444
17.2000	395	13	264	8	0	319	10	5
17.2100	3739	109	4161	116	43	4651	134	80
17.2200	9095	234	14411	354	190	9094	231	113
17.2302	100422	2842	117049	3273	1282	131621	3680	2242
17.2303	12695	331	13292	353	121	14602	390	222
17.2305	24895	720	21325	589	80	22591	619	255
17.2306	175190	4920	176666	4965	1419	195519	5116	2651
17.2307	7084	198	9200	302	143	9531	313	213
17.2399	123732	2970	88046	2258	180	92771	2390	909
17.2400	3110	95	3024	91	24	3228	96	51
17.2601	3690	95	3030	74	8	3666	88	43
17.2602	74285	2067	80113	2258	813	87030	2462	1426
17.2699	14911	361	14292	327	75	14284	329	149
17.2700	8193	202	9116	220	79	9389	229	125
17.2801	69765	1809	114148	3326	2054	122346	3529	2619
17.2802	115457	3041	128615	3420	1295	135405	3600	2029
17.2899	66237	1715	48872	1313	116	52005	1399	539
17.2900	48095	1270	41195	1080	195	44085	1160	523
17.3000	9987	272	9294	269	75	9969	286	149
17.3100	51627	1411	50543	1402	417	53708	1490	788
17.3200	12225	346	11151	325	81	11781	346	172
17.3300	51437	1422	50048	1363	369	55584	1513	799
17.3400	2129	60	2238	63	21	2358	64	37
17.3500	20990	568	19476	571	170	19777	543	278
17.3600	77810	1970	75140	1986	506	78351	1972	978
17.9900	177857	4779	505985	13539	10198	570000	15715	13333

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19

Estimated Number of Teachers Needed by State and Vocational Education Program for Fiscal Years 1979 and 1981 Assuming Medium (10 Percent) Annual Turnover Rate

Table 19 Explained

Table 19 is read by first finding the state of interest across the top and then locating the particular vocational program code of interest at the left.* The numbers in the cells of the body of the table are absolute numbers of estimated teacher needs. For example, Alabama has a need for 170 vocational agriculture teachers by 1979 and 299 by 1981. Program estimated totals of teachers needed are suggested for program areas, e.g., 01.0000 agriculture, and programs, e.g., 01.0100 agriculture production.

Whether a need for teachers exists is answered by referring to the numbers in the body of the table. Alabama, for example, has a need for teachers in all program areas, e.g., agriculture, distribution and so forth. Alabama also has an estimated need for teachers in almost all specific programs. An exception is in the case where negative signs are exhibited. For example, code 04.9900 shows a negative number which is interpreted as a surplus of teachers for the years 1979 and 1981 after having considered both teacher turnover and changes in enrollment.

The question of whether the need for teachers is growing is answered by subtracting the 1979 data from the 1981 data. If the number is a positive difference, an expansion of teacher needs is anticipated. Using Alabama's data again for illustrative purposes, 299 agriculture teachers are needed for fiscal year 1981 and 170 in fiscal year 1979. This data shows that 129 additional teachers will be needed over the two-year span of time.

By comparing the program area numbers of teachers needed by area for any state and any year, one can easily see which areas are in need of the most teachers. In Alabama, for example, trades and industry, consumer and homemaking, and office programs have the highest anticipated need for teachers. Each state's data can be used in the same way as illustrated for Alabama.

Persons expecting to use state level data should recheck the data from this report with the state division of vocational education regarding any changes in programs which would increase or decrease the estimated needs for teachers. Further, if a state has actual turnover rates for teachers, the rates for that state should be used in determining the number of teachers needed for a future year.

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* A list of program codes and titles is provided in the front of the appendix for reference by readers who are unfamiliar with program codes.

TABLE 19

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ALABAMA		ALASKA		ARIZONA		ARKANSAS		CALIFORNIA		COLORADO	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
AGRICULTURE												
01.0000 TOTAL	170	298	2	3	67	120	122	247	609	1014	25	44
01.0100	40	73	0	0	19	33	41	83	290	445	32	59
01.0200	2	-1	0	0	2	4	11	23	16	28	0	0
01.0300	29	61	0	0	12	19	50	101	92	150	0	0
01.0400	1	1	0	0	0	1	5	10	8	11	0	0
01.0500	11	22	0	0	8	15	4	9	158	281	3	6
01.0600	1	1	2	3	5	9	5	10	15	43	-2	-1
01.0700	3	6	0	0	0	0	5	10	33	44	0	0
01.9900	82	134	0	0	22	38	1	3	-3	13	-8	-2
DISTRIBUTION												
04.0000 TOTAL	32	48	9	19	307	622	36	69	1316	1930	14	66
04.0100	1	1	0	0	46	69	0	0	9	16	-1	-1
04.0200	6	10	0	0	12	15	1	2	13	24	-2	0
04.0300	1	2	0	0	11	13	1	2	5	6	-1	-1
04.0400	1	1	0	0	61	104	1	2	133	187	1	2
04.0500	1	1	0	0	0	0	0	0	2	4	0	0
04.0600	6	11	0	0	6	7	5	9	33	62	-4	-3
04.0700	11	18	0	0	11	15	6	12	4	11	-13	-11
04.0800	11	18	2	5	147	305	14	26	173	684	-31	-21
04.0900	1	2	0	0	-1	-1	1	1	3	3	-1	0
04.1000	1	1	0	0	0	0	0	1	9	10	0	0
04.1100	0	0	0	0	12	21	0	1	9	19	1	2
04.1200	0	0	0	0	4	8	0	0	24	42	0	0
04.1300	0	0	0	0	20	26	0	1	19	32	-3	-3
04.1400	0	0	0	0	0	0	0	0	1	1	0	0
04.1500	2	4	0	0	-4	-3	1	1	1	1	-3	-1
04.1600	0	1	0	0	5	4	1	1	1	2	-1	0
04.1700	1	3	0	0	159	234	1	2	359	510	-3	0
04.1800	1	2	7	14	3	4	1	1	83	126	-1	0
04.1900	0	0	0	0	11	14	0	1	57	84	-3	-1
04.2000	0	1	0	0	52	93	0	1	41	64	-3	-1
04.3100	0	0	0	0	0	0	0	0	1	1	-1	-1
04.9900	-13	-9	0	0	-265	-199	2	4	14	43	96	102
HEALTH												
07.0000 TOTAL	59	98	10	21	-141	-46	89	176	965	1504	9	56
07.0101	2	1	1	1	0	1	2	3	92	129	1	2
07.0102	0	0	0	0	0	0	1	2	3	10	0	1
07.0103	0	0	0	0	-1	-1	0	0	30	39	0	0
07.0199	0	0	0	0	-1	-1	0	0	8	9	0	0
07.0203	-2	-2	0	1	3	3	0	1	6	11	3	3
07.0299	0	0	0	0	-2	-1	1	2	13	13	-3	-2

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ALABAMA		ALASKA		ARIZONA		ARKANSAS		CALIFORNIA		COLORADO	
	1979	1981	1979	1991	1979	1981	1979	1981	1979	1981	1979	1981
07.0301	1	4	0	0	19	24	12	24	116	202	9	13
07.0302	20	40	2	4	0	4	13	37	125	201	-5	10
07.0303	3	5	1	2	10	21	14	29	97	246	2	7
07.0305	0	0	0	0	1	1	0	0	3	3	1	1
07.0399	-1	-1	0	0	-53	-37	15	29	101	105	-7	-3
07.0401	0	0	0	0	0	3	0	0	-3	0	0	0
07.0402	0	0	0	0	0	0	0	0	-4	0	0	0
07.0499	0	0	0	0	0	0	0	0	11	11	0	0
07.0501	0	0	0	0	2	2	1	1	34	50	5	8
07.0503	0	0	0	0	0	0	0	0	0	0	0	0
07.0599	0	0	0	0	-1	-1	0	0	0	0	1	1
07.0600	0	0	0	0	-1	-1	0	0	6	7	0	0
07.0700	0	0	0	0	-1	0	0	0	2	3	0	0
07.0800	0	0	0	0	-11	-7	0	0	-104	-65	2	2
07.0903	0	0	2	4	0	0	0	0	32	48	2	3
07.0904	0	0	1	2	0	2	0	1	79	124	3	6
07.0906	6	8	0	0	0	0	3	6	2	3	2	2
07.0907	0	1	4	8	-32	-20	14	27	183	191	-4	6
07.0909	0	0	0	0	0	1	0	0	0	0	0	0
07.9900	31	41	0	0	-74	-42	10	21	20	152	2	8
CONSUMER AND HOMEMAKING												
09.0100 TOTAL	262	429	95	171	-267	-191	65	195	1754	2570	33	121
09.0101	91	147	18	32	-55	-39	40	122	-100	330	33	121
09.0102	2	3	5	10	-29	-20	1	5	90	118	0	0
09.0103	3	4	31	56	-31	-22	4	12	379	455	0	0
09.0104	3	5	3	6	-4	-3	5	14	60	97	0	0
09.0106	3	4	4	8	-36	-25	2	5	63	79	0	0
09.0107	4	6	23	42	-39	-28	7	22	307	372	0	0
09.0108	1	1	0	0	-1	0	2	7	21	24	0	0
09.0109	2	3	8	14	-12	-8	3	10	37	50	0	0
09.0199	152	256	2	4	-62	-44	0	0	812	1047	0	0
HOME ECONOMICS: OCCUPATIONAL												
09.0200 TOTAL	-11	23	13	27	33	90	21	37	550	943	5	36
09.0201	-7	13	4	9	-12	3	4	6	287	515	3	7
09.0202	13	24	0	1	-2	0	1	2	24	44	0	2
09.0203	7	13	5	10	25	46	14	24	78	121	-10	3
09.0204	0	0	0	0	2	4	1	1	41	54	-2	-2
09.0205	0	2	1	2	0	0	1	1	8	18	-1	-1
09.0299	-39	-28	3	5	20	35	2	3	73	91	16	26

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ALABAMA		ALASKA		ARIZONA		ARKANSAS		CALIFORNIA		COLORADO	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
OFFICE												
14.0000 TOTAL	253	449	138	280	-207	-32	76	174	3335	6427	117	302
14.0100	40	72	16	32	-27	-7	13	30	405	753	25	63
14.0201	5	10	0	0	20	21	1	2	127	132	0	0
14.0203	0	0	0	0	-6	-4	0	0	94	97	7	7
14.0299	4	14	2	5	-57	-41	1	3	10	151	-1	10
14.0300	107	186	44	90	-84	-45	7	16	889	1552	95	170
14.0400	0	0	0	0	16	23	2	4	117	193	-1	0
14.0500	0	0	0	0	14	15	0	1	12	16	0	0
14.0600	1	1	0	0	11	14	1	2	124	190	-1	-1
14.0700	44	75	24	48	-15	10	16	36	666	1099	43	77
14.0800	0	0	2	4	-16	-8	2	4	634	659	-54	-36
14.0900	49	84	48	99	-89	-44	22	52	710	1080	-9	-6
14.9900	3	3	1	2	27	34	11	26	-465	-305	11	17
TECHNICAL												
16.0000 TOTAL	8	18	39	80	-62	-3	-12	-9	737	1307	-22	80
16.0101	0	0	14	28	2	3	0	0	5	10	2	4
16.0103	0	0	0	0	0	1	-1	0	24	53	3	5
16.0104	0	1	2	4	2	3	2	0	10	17	0	0
16.0105	0	1	0	0	0	0	0	0	3	5	0	0
16.0106	0	0	3	6	5	9	0	0	54	73	3	6
16.0107	0	0	0	1	0	0	-4	-3	19	23	-1	3
16.0108	5	11	1	1	29	49	2	0	257	349	-15	7
16.0109	0	0	0	0	0	0	0	0	4	7	1	2
16.0110	0	0	0	0	2	3	-2	-2	13	16	-15	-10
16.0111	0	0	0	0	2	2	0	0	-2	3	0	0
16.0112	0	0	0	0	0	0	-1	-1	6	7	2	0
16.0113	1	1	0	0	-30	-21	-1	-1	44	66	2	3
16.0114	0	0	5	11	-4	-4	0	0	4	7	-3	-2
16.0117	0	0	0	0	-4	-3	-1	-1	11	55	0	0
16.0601	0	0	1	2	-4	-3	-1	0	21	41	0	1
16.0602	0	0	10	20	0	0	0	0	10	21	8	18
16.0603	0	1	0	0	0	0	0	0	15	22	0	0
16.0604	0	0	0	0	0	0	0	0	3	5	0	0
16.0605	0	0	2	4	-5	-4	0	0	263	449	10	19
16.9900	3	5	0	1	-55	-39	0	0	214	224	-10	-6
16.9901	0	0	0	0	0	0	0	0	0	2	0	0
16.9902	-3	-2	0	0	0	0	0	0	11	14	0	0
TRADES AND INDUSTRY												
17.0000 TOTAL	561	998	126	258	437	739	181	355	3570	5827	99	269
17.0100	35	59	0	0	14	27	4	7	37	67	0	2
17.0200	4	8	0	0	2	3	2	4	16	34	3	4
17.0301	23	43	2	4	13	21	3	6	56	109	7	7
17.0302	42	89	15	32	48	80	18	36	292	513	26	46

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ALABAMA		ALASKA		ARIZONA		ARKANSAS		CALIFORNIA		COLORADO	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
17.0399	-5	-3	0	0	41	72	1	2	206	341	-13	-7
17.0400	5	6	2	4	2	5	0	1	77	110	2	2
17.0500	4	7	0	0	-24	-17	2	4	-1	3	0	0
17.0600	1	2	0	0	1	2	0	0	1	5	0	0
17.0700	1	2	0	1	12	19	1	1	11	50	3	7
17.0800	1	1	8	17	0	0	0	1	4	5	0	0
17.0900	0	0	6	12	5	8	0	0	137	200	4	9
17.1001	23	40	6	12	9	16	11	21	103	158	4	12
17.1002	29	46	1	3	2	3	3	6	15	28	-5	-2
17.1004	22	40	0	0	2	5	2	4	14	22	0	2
17.1007	4	7	1	2	2	4	2	5	26	38	-3	-1
17.1099	-4	0	5	10	22	36	2	4	136	205	-5	0
17.1100	2	5	0	0	2	3	2	3	4	15	-7	-3
17.1200	8	15	1	1	4	8	3	5	8	14	-2	4
17.1300	26	45	13	26	12	9	5	10	270	396	32	28
17.1400	5	11	4	8	16	27	3	7	40	65	30	33
17.1500	48	81	5	11	13	22	4	7	192	325	0	0
17.1600	-1	0	0	0	10	10	1	2	2	5	0	0
17.1700	31	57	0	0	1	2	1	1	156	282	-1	1
17.1900	18	22	3	6	9	14	2	3	149	260	9	12
17.2000	0	0	0	0	1	1	0	0	0	0	0	0
17.2100	3	5	0	0	0	1	0	0	8	11	0	0
17.2200	0	0	2	5	0	0	0	0	9	15	0	0
17.2302	13	28	0	0	4	9	5	10	271	292	6	11
17.2303	1	2	0	0	0	0	0	1	10	11	0	0
17.2305	1	4	2	5	5	9	0	1	84	87	-2	0
17.2306	56	88	4	9	32	54	12	24	513	534	17	24
17.2307	2	3	0	0	0	0	0	0	5	5	0	0
17.2399	1	2	12	24	3	6	1	1	-406	-161	-1	0
17.2400	0	0	0	0	0	0	0	1	8	8	0	0
17.2601	7	11	0	0	0	0	0	0	2	4	0	0
17.2602	24	43	0	0	9	19	2	4	109	182	5	10
17.2699	-1	0	0	0	-1	-1	0	0	10	15	0	1
17.2700	0	0	0	0	0	0	0	0	24	37	0	0
17.2801	32	38	0	0	22	30	29	55	108	178	0	0
17.2802	13	24	0	0	43	50	16	32	312	487	0	0
17.2899	-4	21	0	0	17	30	3	6	232	291	-1	-1
17.2900	14	24	0	0	3	6	2	4	31	77	-12	-13
17.3000	-6	-5	0	0	2	3	1	2	6	14	0	0
17.3100	4	12	10	21	6	10	3	6	49	79	6	12
17.3200	0	0	0	0	0	0	0	0	8	10	1	1
17.3300	12	20	0	0	17	38	1	2	38	64	-1	0
17.3400	1	2	0	0	0	0	0	0	0	1	0	0
17.3500	9	18	0	0	7	12	2	4	38	60	-3	0
17.3600	-1	6	17	34	6	10	2	4	139	206	2	2
17.9[illegible]	48	65	5	10	40	72	21	53	-29	88	14	46

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	CONNECTICUT		DELAWARE		FLORIDA		GEORGIA		HAWAII		IDAHO	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
AGRICULTURE												
01.0000 TOTAL	15	39	10	14	-148	-135	-116	-41	35	50	43	74
01.0100	-16	-11	6	7	-21	-17	-109	-77	14	20	32	59
01.0200	0	0	5	5	0	0	-1	1	0	0	-1	0
01.0300	-5	-4	1	2	-13	-11	-38	-27	0	0	7	10
01.0400	1	1	4	4	-1	-1	-18	-8	0	0	0	0
01.0500	-3	0	1	2	-36	-30	1	13	20	28	3	4
01.0600	-1	0	1	1	-3	-3	3	8	0	0	0	0
01.0700	-2	-1	0	0	-4	-3	-8	-6	0	0	0	0
01.9900	42	53	-8	-6	-70	-59	58	55	1	2	0	0
DISTRIBUTION												
04.0000 TOTAL	95	167	12	14	53	522	-59	41	51	90	45	67
04.0100	0	0	0	0	1	9	-4	0	0	0	0	0
04.0200	0	0	0	0	1	13	1	6	0	0	-3	-2
04.0300	0	0	0	0	0	2	-2	2	0	0	0	0
04.0400	0	0	0	0	7	71	-11	-4	1	3	-1	0
04.0500	0	0	0	0	2	18	-1	-1	0	0	0	0
04.0600	0	0	3	3	0	1	-17	-8	0	0	-2	-1
04.0700	0	0	0	0	1	9	16	23	2	4	3	5
04.0800	0	0	0	1	13	130	36	48	46	68	38	43
04.0900	0	0	0	0	0	0	-2	-2	0	0	-1	-1
04.1000	0	0	0	0	0	3	-1	-1	0	0	0	0
04.1100	0	0	1	1	4	42	-4	-2	5	6	1	1
04.1200	4	7	0	0	0	4	-3	-2	0	0	-1	0
04.1300	0	0	0	0	2	20	-5	-3	0	0	0	0
04.1400	0	0	0	0	0	2	-1	-1	0	0	0	0
04.1500	0	0	0	0	3	32	-10	-7	0	0	-1	0
04.1600	0	0	0	0	0	1	2	2	0	0	0	0
04.1700	0	0	0	0	6	63	-45	-28	-1	0	-4	-3
04.1800	0	0	4	3	3	30	2	5	1	4	0	0
04.1900	1	1	0	1	0	1	-13	-5	0	0	0	0
04.2000	0	0	22	19	0	0	8	18	0	0	-3	-1
04.3100	0	0	0	0	0	0	-7	-5	0	0	0	0
04.9900	90	160	-19	-13	7	72	4	4	-23	-17	29	36
HEALTH												
07.0000 TOTAL	5	43	32	42	-134	230	-72	14	1	20	19	54
07.0101	0	1	6	6	-6	9	5	8	2	2	2	9
07.0102	2	2	0	0	-2	2	0	0	0	0	3	0
07.0103	2	2	3	3	-1	0	-2	-1	0	0	0	0
07.0199	0	0	2	2	0	0	0	0	0	2	0	0
07.0203	-2	0	3	3	-1	1	-3	49	0	0	0	0
07.0299	0	0	1	2	-4	8	-1	0	0	4	0	0

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	CONNECTICUT		DELAWARE		FLORIDA		GEORGIA		HAWAII		IDAHO	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
07.0301	1	6	11	11	-26	44	2	0	-4	1	0	0
07.0302	-2	1	10	11	-19	32	6	-30	3	-1	-4	-6
07.0303	-7	5	2	2	-15	25	-32	-21	1	-2	16	16
07.0305	1	2	0	0	-1	1	0	0	1	0	-1	-1
07.0399	0	0	2	2	-9	15	-22	-16	3	3	-15	-11
07.0401	-1	-1	0	0	0	0	0	0	0	1	0	0
07.0402	0	0	4	4	-1	0	0	0	0	0	0	0
07.0499	0	0	0	0	-1	0	-2	-2	0	0	0	0
07.0501	2	4	0	0	-3	4	-2	0	0	0	0	0
07.0503	0	0	0	0	0	0	0	0	0	0	0	0
07.0599	0	0	0	0	0	0	0	0	0	0	0	0
07.0600	0	0	0	0	0	0	0	0	0	0	0	0
07.0700	6	8	1	1	0	0	0	0	0	0	0	0
07.0800	0	0	0	0	-3	4	0	0	0	0	0	0
07.0903	-1	-1	1	1	-2	3	0	0	0	0	0	0
07.0904	0	0	6	6	-2	2	-1	0	-1	0	0	0
07.0906	-6	-6	4	3	0	0	-20	-14	0	0	-1	-1
07.0907	0	0	1	1	-3	4	-44	-35	0	0	0	0
07.0909	0	0	0	0	0	0	0	0	0	0	0	0
07.9900	13	17	-23	-17	-36	52	48	76	-2	1	21	29
CONSUMER AND HOMEMAKING												
09.0100 TOTAL	953	1717	73	71	-1003	-717	27	203	67	97	51	113
09.0101	953	1717	8	8	-62	-44	96	236	25	37	18	41
09.0102	0	0	15	13	-111	-80	-4	-3	1	2	4	8
09.0103	0	0	-5	0	-422	-301	-12	-8	14	20	8	17
09.0104	0	0	28	23	-30	-22	-62	-44	1	1	3	6
09.0106	0	0	4	4	-67	-48	-3	-2	5	8	1	1
09.0107	0	0	8	8	-232	-166	-11	-8	14	23	7	16
09.0108	0	0	10	10	-3	-2	-1	-1	2	4	7	16
09.0109	0	0	4	4	-50	-36	-4	-3	1	1	4	8
09.0199	0	0	0	0	-26	-18	27	35	2	3	1	1
HOME ECONOMICS: OCCUPATIONAL												
09.0200 TOTAL	91	144	-8	26	-177	-60	-119	0	4	7	-7	0
09.0201	14	41	9	17	-31	-10	-28	15	2	3	0	0
09.0202	6	9	6	13	-43	-15	-32	-3	0	0	1	1
09.0203	70	91	4	8	-44	-15	-34	-12	0	0	-6	-1
09.0204	1	3	10	10	-37	-12	-14	-11	0	0	0	0
09.0205	0	0	4	10	-1	0	-21	-15	0	1	-1	-1
09.0299	0	0	-44	-31	-22	-7	0	0	0	0	-1	0

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	CONNECTICUT		DELAWARE		FLORIDA		GEORGIA		HAWAII		IDAHO	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
OFFICE												
14.0000 TOTAL	560	1035	30	47	-447	-164	-510	-24	130	226	96	167
14.0100	-86	-36	9	13	-66	-23	-6	20	31	46	-1	5
14.0201	-5	-4	6	6	-23	-8	-17	-12	-1	0	1	0
14.0203	0	0	7	7	0	0	-10	-6	3	5	-2	-1
14.0299	13	14	1	3	0	0	53	78	13	24	6	9
14.0300	0	0	35	38	-56	-20	-99	53	50	91	35	54
14.0400	4	4	-1	1	-10	-4	-8	-6	-1	-1	0	1
14.0500	0	0	0	1	-9	-3	-5	-3	0	0	-1	0
14.0600	0	0	0	1	-13	-8	-8	-8	0	0	-1	0
14.0700	-80	-39	22	29	-96	-34	-46	92	28	42	93	119
14.0800	6	21	-15	-9	-26	-9	-36	-20	0	0	-2	-1
14.0900	-173	-115	-18	-12	-144	-51	-352	-209	15	23	-33	-17
14.9900	882	1187	-14	-11	-23	-8	0	2	1	3	0	0
TECHNICAL												
16.0000 TOTAL	4	9	70	78	-352	-141	-123	-41	24	34	9	20
16.0101	0	0	11	10	0	0	0	0	0	0	0	0
16.0103	0	0	-6	-4	-15	-6	-4	-4	0	0	0	0
16.0104	0	0	2	2	0	0	-15	-11	0	0	0	0
16.0105	0	0	5	6	0	0	0	2	0	0	0	0
16.0106	0	0	2	2	-7	-3	-6	0	-1	0	2	5
16.0107	0	0	1	1	0	0	-4	1	-2	-1	0	0
16.0108	0	0	11	12	0	0	-40	-10	24	34	6	12
16.0109	0	0	0	1	-4	-2	-18	-11	0	0	0	0
16.0110	0	0	9	10	-18	-7	-1	0	0	0	0	0
16.0111	0	0	8	9	0	0	-12	-8	0	0	0	0
16.0112	0	0	6	6	0	0	-4	-2	0	0	0	0
16.0113	0	0	3	4	0	0	-14	2	0	0	0	0
16.0114	0	0	0	0	0	0	0	0	0	0	0	0
16.0117	0	0	0	0	0	0	-1	-1	0	0	0	0
16.0601	0	0	-1	-1	-3	-1	0	0	0	0	0	0
16.0602	0	0	4	5	-63	-24	0	0	0	0	0	0
16.0603	0	0	1	2	0	0	1	0	0	0	0	0
16.0604	0	0	1	1	0	0	-2	0	0	0	0	0
16.0605	3	7	5	7	-177	-72	0	0	0	0	0	0
16.9900	1	1	-5	-3	-42	-28	0	0	0	0	0	0
16.9901	0	0	2	2	0	0	0	0	0	0	0	0
16.9902	0	0	10	8	-3	-1	-1	-1	0	0	0	1
TRADES AND INDUSTRY												
17.0000 TOTAL	222	465	461	507	-1099	-642	193	990	1	152	125	218
17.0100	-16	-5	5	6	-63	-37	-20	-3	0	0	1	2
17.0200	15	24	8	9	-10	-4	-45	-37	0	0	0	0
17.0301	7	9	0	1	-29	-17	-24	-9	3	4	2	4
17.0302	0	13	7	4	-128	-74	-40	-29	-18	0	14	29

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1976 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	CONNECTICUT		DELAWARE		FLORIDA		GEORGIA		HAWAII		IDAHO	
	1976	1981	1976	1981	1976	1981	1976	1981	1976	1981	1976	1981
17.0399	20	30	2	2	-4	-4	211	266	90	102	-1	-1
17.0400	1	2	3	3	-23	-14	-3	0	2	3	0	0
17.0500	0	0	0	0	-4	-2	-10	-7	0	0	-2	-2
17.0600	0	1	0	1	-3	-2	4	19	0	0	1	2
17.0700	0	0	1	2	-21	-13	7	9	1	2	0	0
17.0800	0	0	0	0	-2	-1	0	0	0	0	0	0
17.0900	1	2	0	1	-16	-11	-1	17	0	0	0	0
17.1001	-3	8	-2	1	-41	-24	160	-27	-43	-29	1	4
17.1002	-20	-6	14	14	-30	-18	-33	25	-3	-2	0	0
17.1004	-1	0	4	4	-20	-12	-41	-24	4	4	0	0
17.1007	-15	-3	-1	0	-17	-10	-36	-22	-13	-9	3	4
17.1099	-3	-2	4	6	-38	-22	-19	-13	-54	-59	0	1
17.1100	4	5	-2	-1	-9	-6	-8	-5	0	0	0	1
17.1200	-1	0	4	5	-5	-3	-2	-1	1	1	0	1
17.1300	4	9	11	14	-41	-24	25	54	11	21	0	3
17.1400	-1	-1	3	6	-25	-14	111	145	-7	-3	3	8
17.1500	4	13	-1	1	-104	-61	21	47	0	0	3	12
17.1600	2	3	0	0	-2	-1	1	1	0	0	0	0
17.1700	0	0	7	9	-43	-25	-42	-30	0	0	-7	-5
17.1900	7	13	0	1	-17	-10	26	51	15	19	-1	2
17.2000	0	0	0	0	0	0	2	0	0	0	-1	-1
17.2100	5	8	-1	0	-2	-1	-1	0	0	0	-1	-1
17.2200	0	0	-1	-1	-16	-10	0	0	0	0	0	0
17.2302	244	267	5	5	-14	-8	-12	0	2	2	6	9
17.2303	21	33	2	2	0	0	-6	-4	0	0	0	0
17.2305	-1	-1	3	3	-6	-3	-29	-17	-21	-14	1	1
17.2306	-17	-8	2	4	-49	-29	-46	-23	-5	0	22	38
17.2307	-2	-1	3	3	0	0	1	1	0	0	0	0
17.2399	1	6	9	13	-22	-13	152	206	13	19	19	23
17.2400	0	0	0	0	0	0	0	0	0	0	0	1
17.2601	-1	0	0	0	-2	-1	-3	0	0	0	0	0
17.2602	4	6	0	1	-33	-19	32	52	2	4	0	0
17.2699	0	0	-1	-1	0	0	-9	-7	0	0	0	0
17.2100	0	0	-1	-1	-1	0	-1	-1	0	0	0	0
17.2801	0	0	358	352	0	0	-1	0	-1	0	2	3
17.2802	0	0	5	6	0	0	-12	-7	-5	8	-1	3
17.2899	2	4	0	0	0	0	-34	-24	-5	6	-1	-1
17.2900	1	2	0	0	-36	-21	-38	-24	-10	-7	1	1
17.3000	0	0	-1	-1	-2	-1	11	14	2	3	0	0
17.3100	3	12	4	4	-45	-26	-1	5	0	0	2	3
17.3200	0	0	5	6	0	0	-1	-1	0	0	0	0
17.3300	78	95	0	0	-12	-7	82	92	4	4	0	0
17.3400	0	0	0	0	0	0	2	2	0	0	0	0
17.3500	0	0	-2	-1	-10	-6	-14	-10	0	0	0	1
17.3600	0	0	20	26	-11	-7	-9	-4	-1	-1	1	1
17.9900	-121	-79	-15	-10	-128	-75	8	244	44	74	40	50

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ILLINOIS		INDIANA		IOWA		KANSAS		KENTUCKY		LOUISANA	
	1979	1981	1979	1981	1979	1981	1979	1991	1979	1981	1979	1981
AGRICULTURE												
01.0000 TOTAL	320	507	143	238	178	341	74	124	114	193	138	211
01.0100	142	225	81	134	-137	-9	127	155	34	57	71	119
01.0200	30	47	3	5	5	10	-1	0	1	1	9	14
01.0300	68	108	35	58	-1	6	-30	-20	13	18	25	42
01.0400	7	11	0	1	0	0	-3	-2	0	0	5	8
01.0500	53	84	17	29	-2	3	-1	2	13	24	10	17
01.0600	19	30	6	10	1	2	-4	-3	1	1	3	5
01.0700	1	2	0	1	0	0	-5	-4	2	2	4	6
01.9900	0	0	1	1	312	324	-9	-6	53	89	0	0
DISTRIBUTION												
04.0000 TOTAL	641	1043	-152	-108	117	202	-22	73	99	101	38	64
04.0100	16	26	334	373	1	2	4	4	1	1	1	1
04.0200	15	24	-4	0	16	25	-1	5	1	1	2	4
04.0300	7	11	52	75	5	8	2	6	1	2	2	4
04.0400	19	30	-3	-2	8	11	4	11	3	4	2	3
04.0500	1	2	0	1	-4	-3	2	4	1	1	0	1
04.0600	17	28	33	54	24	34	4	14	7	13	6	11
04.0700	48	78	24	37	-5	-4	4	23	1	1	6	9
04.0800	117	516	37	35	10	21	-29	-8	1	1	-8	-7
04.0900	8	13	5	8	4	6	0	4	1	1	1	2
04.1000	5	9	5	7	2	3	1	2	1	1	1	2
04.1100	4	7	-2	-2	2	3	1	2	1	1	1	1
04.1200	17	28	4	5	8	10	2	8	2	3	1	1
04.1300	3	5	-1	-1	-15	-10	-6	0	1	1	1	1
04.1400	0	0	-1	0	0	0	-1	-1	0	0	0	0
04.1500	8	13	3	4	-1	-1	-1	-1	1	1	1	1
04.1600	2	4	2	2	5	7	1	3	1	1	1	1
04.1700	76	123	-1	-1	-1	-1	0	0	1	1	1	1
04.1800	13	21	-2	-1	1	1	0	0	1	1	1	1
04.1900	9	15	0	0	-3	-1	0	0	1	1	1	1
04.2000	53	86	-21	-15	3	5	0	0	15	24	1	1
04.3100	2	3	-1	-1	1	1	0	0	-1	0	1	1
04.9900	0	0	74	77	97	122	3	4	52	83	2	3
HEALTH												
07.0000 TOTAL	525	903	942	984	416	708	83	129	174	273	94	128
07.0101	15	26	4	10	3	7	2	3	1	2	1	1
07.0102	9	15	8	9	1	1	2	3	0	0	1	1
07.0103	3	5	9	14	0	1	0	0	0	0	0	0
07.0199	1	1	-3	-2	1	1	0	0	0	0	0	0
07.0203	15	27	0	2	0	1	-1	4	0	0	-2	-3
07.0299	12	20	2	4	-1	0	1	4	0	0	-2	-3

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1976 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ILLINOIS		INDIANA		IOWA		KANSAS		KENTUCKY		LOUISIANA	
	1976	1981	1976	1981	1976	1981	1976	1981	1976	1981	1976	1981
07.0301	160	275	191	214	2	9	3	15	20	46	0	0
07.0302	26	127	174	208	3	15	32	31	31	38	62	80
07.0303	91	156	7	21	-43	-6	25	47	11	23	22	34
07.0305	4	6	8	10	1	2	0	0	2	3	0	0
07.0399	3	5	8	11	-266	-195	-4	-3	22	33	0	0
07.0401	3	4	-3	-2	0	0	0	0	0	0	0	0
07.0402	7	12	-5	-3	0	1	0	3	6	0	0	0
07.0499	3	5	-3	-2	-4	-4	0	4	6	0	0	0
07.0501	20	34	37	40	1	1	0	1	2	2	0	0
07.0503	1	2	0	0	0	0	0	0	0	0	0	0
07.0599	1	1	0	0	0	0	0	0	0	0	0	0
07.0600	2	3	3	5	0	0	0	0	0	0	0	0
07.0700	2	3	0	0	-1	-1	0	0	0	0	0	0
07.0800	15	22	7	8	-3	-3	3	4	0	0	0	0
07.0903	7	12	21	25	1	1	0	0	1	2	0	0
07.0904	6	10	3	7	3	4	1	2	3	4	1	1
07.0906	58	100	-4	4	-10	-7	0	0	0	0	0	0
07.0907	10	17	5	5	-48	-48	-4	-3	31	31	0	0
07.0909	2	3	1	1	0	0	-1	2	0	0	0	0
07.9900	0	0	371	392	794	924	-1	5	59	86	12	15
CONSUMER AND HOMEMAKING												
09.0100 TOTAL	115	379	347	542	346	581	212	354	-591	-422	175	287
09.0101	10	33	4	9	50	83	98	130	-234	-169	562	564
09.0102	19	63	26	41	17	28	14	24	-27	-19	0	0
09.0103	24	79	78	121	30	50	32	53	-64	-45	0	0
09.0104	18	60	84	131	77	129	5	9	-28	-20	0	0
09.0105	5	18	35	54	27	46	22	37	-61	-44	0	0
09.0107	30	99	82	128	42	71	41	68	-98	-140	0	0
09.0108	3	9	15	24	1	1	4	6	-7	-5	0	0
09.0109	6	19	23	35	15	25	10	17	-44	-31	0	0
09.0199	0	0	0	0	88	147	6	9	-59	-42	-387	-277
HOME ECONOMICS: OCCUPATIONAL												
09.0200 TOTAL	390	613	99	146	850	1049	15	33	47	79	37	60
09.0201	107	147	19	31	25	44	-1	0	14	24	7	13
09.0202	105	165	21	34	14	35	5	8	11	16	6	8
09.0203	145	227	41	63	28	61	4	10	15	26	22	36
09.0204	29	46	4	4	7	13	-1	0	5	8	1	2
09.0205	5	8	4	4	1	34	-1	-1	2	4	0	0
09.0299	0	0	8	8	775	833	10	14	0	0	1	1

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ILLINOIS		INDIANA		IOWA		KANSAS		KENTUCKY		LOUISIANA	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
OFFICE												
14.0000 TOTAL	1520	2433	252	381	309	502	-27	128	278	484	399	612
14.0100	352	563	54	83	-29	-5	-8	5	38	70	79	121
14.0201	19	30	-9	-6	-13	-16	-1	0	-15	-19	0	0
14.0203	95	152	-12	-8	-16	-12	-1	-1	-10	-7	0	0
14.0299	34	54	-21	-13	-20	-14	-3	-3	0	0	-34	-24
14.0300	138	221	-21	-15	22	41	12	65	157	260	84	130
14.0400	16	26	-2	-1	0	9	4	8	0	0	17	27
14.0500	5	7	1	1	1	1	4	7	0	0	0	0
14.0600	25	40	1	2	-14	-11	-3	0	0	0	0	0
14.0700	391	626	43	60	-29	-1	-4	39	95	159	69	105
14.0800	69	110	6	8	-116	-82	-7	-1	0	0	0	0
14.0900	376	602	-99	-71	-45	-30	-16	3	-3	-2	128	196
14.9900	0	0	218	348	541	588	1	1	-14	-11	44	68
TECHNICAL												
16.0000 TOTAL	481	855	139	150	140	235	4	14	14	429	24	38
16.0101	7	13	4	4	0	0	14	11	0	0	2	1
16.0103	36	65	19	21	15	15	0	0	0	0	1	1
16.0104	43	77	0	1	0	0	0	0	0	0	1	1
16.0105	2	3	11	11	0	0	0	0	0	0	0	0
16.0106	8	14	17	17	-18	-13	4	3	2	2	2	3
16.0107	12	22	6	7	-20	-15	-1	0	0	0	0	0
16.0108	94	167	7	9	31	46	-4	-4	8	17	11	17
16.0109	6	12	1	1	2	3	0	0	0	0	0	0
16.0110	3	5	1	2	-12	-9	0	0	0	0	0	0
16.0111	61	108	5	5	0	0	0	0	0	0	0	0
16.0112	2	3	0	0	0	0	0	0	2	4	7	11
16.0113	42	75	4	6	13	24	0	0	1	2	0	0
16.0114	44	78	3	3	0	0	0	0	0	0	0	0
16.0117	0	0	2	4	0	0	0	0	0	0	1	2
16.0601	12	21	1	1	0	0	0	0	0	0	0	0
16.0602	43	77	0	0	0	0	0	0	0	0	0	0
16.0603	2	3	0	0	0	0	0	0	0	0	0	0
16.0604	0	0	0	0	0	0	0	0	0	0	0	0
16.0605	56	100	0	1	14	22	8	10	0	0	3	0
16.9900	0	0	56	56	136	169	-12	-9	0	0	1	1
16.9901	0	0	0	0	0	0	0	0	0	0	0	0
16.9902	8	15	0	0	0	0	0	0	0	0	0	0
TRADES AND INDUSTRY												
17.0000 TOTAL	1627	2591	685	1015	542	916	100	356	1958	3180	443	660
17.0100	24	38	22	31	-4	0	10	19	10	24	22	35
17.0200	5	8	-4	-3	1	0	-1	-1	8	11	4	5
17.0301	20	31	-34	-24	0	8	14	27	17	29	9	13
17.0302	217	346	-83	-59	2	39	-3	-1	95	109	61	96

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	ILLINOIS		INDIANA		IOWA		KANSAS		KENTUCKY		LOUISIANA	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
17.0399	16	26	-23	-16	-24	-17	5	*	3	*	1	1
17.0400	12	19	-5	*	-10	-5	7	10	-2	*	-2	-1
17.0500	4	7	-12	-8	-10	-7	0	0	4	*	3	4
17.0600	1	2	0	0	0	0	0	0	3	*	1	1
17.0700	42	67	16	20	1	4	2	2	4	*	3	5
17.0800	0	0	0	0	0	0	0	0	0	0	-10	-9
17.0900	14	23	8	7	-3	-1	1	3	1	1	1	2
17.1001	125	196	-18	-13	8	20	19	29	37	74	32	49
17.1002	28	45	-10	-7	-13	-9	22	27	20	38	8	13
17.1003	3	4	-2	-5	-1	0	0	3	8	12	4	4
17.1007	3	5	-14	-10	-4	-5	-5	-4	5	12	5	8
17.1099	45	71	-40	-29	-12	-9	-6	-4	-30	-21	-4	-6
17.1100	7	11	1	1	-8	-5	32	39	1	3	3	4
17.1200	4	6	5	8	-1	2	9	13	8	14	11	18
17.1300	216	344	-24	-17	-4	1	10	19	17	29	31	44
17.1400	50	80	28	46	-14	-6	-14	-9	26	54	-14	-10
17.1500	66	105	36	52	-16	-6	-34	-24	10	21	-8	4
17.1600	1	1	0	0	0	0	2	2	0	0	0	1
17.1900	6	10	12	15	-34	-26	-70	-44	3	6	2	32
17.2000	101	160	12	18	1	6	-24	-17	7	15	1	9
17.2100	0	0	0	0	0	0	0	0	0	0	0	0
17.2200	0	1	0	0	0	1	0	0	0	0	-1	-1
17.2302	98	155	-37	-27	-11	0	28	56	23	45	15	23
17.2303	19	30	-2	-1	-1	1	-6	-5	0	1	0	0
17.2305	61	96	-6	-4	-3	-1	18	36	9	18	3	5
17.2306	76	121	-64	-46	-37	-9	39	77	52	93	90	144
17.2307	4	6	-18	-13	1	2	0	0	3	6	0	0
17.2399	51	81	-20	-15	-3	-1	-4	-3	0	0	0	0
17.2400	1	4	2	3	0	0	0	0	0	0	0	0
17.2601	1	2	-1	-1	2	3	0	0	0	0	1	1
17.2602	22	35	-9	-6	2	3	0	0	-5	-1	4	6
17.2699	10	16	0	0	0	0	0	0	0	0	0	0
17.2700	16	25	7	7	0	0	1	2	0	0	0	0
17.2801	4	7	0	0	-100	-71	-62	-44	7	13	1	1
17.2802	54	86	-3	-2	-7	-5	14	13	7	16	0	0
17.2899	23	36	0	0	-44	-32	-1	0	8	17	5	8
17.2900	8	12	2	4	7	15	-6	-3	6	8	-1	0
17.3000	1	1	-5	-4	-4	-3	0	0	6	14	0	0
17.3100	33	52	14	21	-6	0	2	6	10	23	7	10
17.3200	1	1	0	0	-14	-10	0	0	0	0	0	0
17.3300	2	3	7	11	0	0	-1	0	3	8	1	1
17.3400	1	1	0	0	0	0	0	0	0	0	0	1
17.3500	3	4	-18	-13	-3	-2	-4	0	5	9	2	3
17.3600	170	271	-31	-22	-14	-9	12	16	2	6	3	5
17.9900	0	0	990	1106	907	1011	58	66	1516	2438	106	118

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES		MAINE		MARYLAND		MASSACHUSETTS		MICHIGAN		MINNESOTA		MISSISSIPPI	
		1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
	AGRICULTURE												
01.0000	TOTAL	14	25	57	87	56	93	108	180	294	426	144	244
01.0100		-7	-4	15	30	13	22	58	96	154	253	112	177
01.0200		-1	0	1	2	2	5	2	3	8	14	3	5
01.0300		0	2	-1	-1	3	5	14	24	28	50	38	61
01.0400		-1	-1	0	0	3	5	1	1	4	6	1	1
01.0500		0	2	-22	-16	23	39	17	29	12	21	6	9
01.0600		2	2	-1	-1	2	4	9	16	6	10	1	2
01.0700		2	2	0	0	2	3	4	6	4	7	1	2
01.9900		17	19	44	73	8	15	3	5	96	160	0	0
	DISTRIBUTION												
04.0000	TOTAL	-1	8	98	176	110	190	504	844	210	369	113	190
04.0100		10	11	-1	-1	2	2	7	11	5	9	3	5
04.0200		-1	0	13	18	3	6	2	3	4	7	2	3
04.0300		-1	-1	0	0	1	1	20	33	4	7	1	1
04.0400		0	0	1	2	1	1	40	67	8	14	4	6
04.0500		0	0	0	0	1	1	0	0	0	0	0	0
04.0600		0	0	1	2	1	1	24	40	12	18	6	9
04.0700		-4	-3	-1	0	7	11	9	14	23	35	13	19
04.0800		-3	-2	0	0	2	3	20	34	8	12	4	6
04.0900		-2	-2	4	8	48	113	248	418	63	108	44	86
04.1000		0	0	0	0	2	3	7	12	3	4	1	2
04.1100		0	0	0	0	2	4	9	15	3	5	2	3
04.1200		-1	-1	0	0	3	5	8	14	3	5	2	3
04.1300		0	0	2	3	3	5	6	10	2	3	1	2
04.1400		0	0	4	7	3	5	1	1	0	0	0	0
04.1500		0	0	0	0	2	3	1	2	0	0	0	0
04.1600		-1	0	0	0	2	3	1	2	0	0	0	0
04.1700		-1	0	-1	-1	2	3	2	4	1	2	0	0
04.1800		-1	-1	0	0	2	3	2	4	1	2	0	0
04.1900		0	0	2	4	4	7	47	79	11	19	4	6
04.2000		0	0	3	5	4	7	10	17	3	5	1	2
04.3100		0	0	3	7	2	4	11	18	4	6	-2	1
04.9900		0	0	0	0	-2	-3	0	0	0	0	0	0
		5	8	7	15	0	0	39	65	91	121	0	0
	HEALTH												
07.0000	TOTAL	74	125	97	247	176	312	524	980	510	904	214	286
07.0101		2	2	7	15	14	24	21	34	8	12	1	3
07.0102		2	2	4	8	5	8	5	8	0	0	0	0
07.0103		0	0	3	7	4	7	5	8	0	0	0	0
07.0199		0	0	0	0	0	0	1	2	0	0	0	0
07.0203		4	4	-16	-11	0	12	2	3	0	0	0	0
07.0299		-1	-1	0	0	0	0	23	36	1	1	-1	-2

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	MAINE		MARYLAND		MASSACHUSETTS		MICHIGAN		MINNESOTA		MISSISSIPPI	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
07.0301	0	0	-9	37	42	70	100	169	C	0	-1	0
07.0302	1	4	5	18	24	39	42	104	40	40	36	44
07.0303	-30	-15	-3	7	15	25	112	188	82	124	14	21
07.0305	0	0	148	18	4	6	0	0	1	2	0	0
07.0399	-2	-2	0	0	3	5	0	0	-3	-4	-1	-1
07.0401	0	0	-2	-2	6	10	0	0	-1	-2	0	-1
07.0402	0	0	-4	-5	2	4	0	0	0	0	0	1
07.0499	0	0	0	0	1	1	1	2	0	0	0	1
07.0501	0	0	-7	-5	8	13	6	10	0	0	2	3
07.0503	0	0	-1	-1	1	1	0	0	0	0	0	0
07.0599	0	0	0	0	1	1	95	159	0	0	0	0
07.0600	0	0	0	0	1	2	3	5	0	0	0	1
07.0700	0	0	-14	-9	7	11	0	0	0	0	0	0
07.0800	0	0	-24	-17	9	15	37	63	0	0	2	4
07.0903	1	1	7	9	7	12	9	15	1	2	2	4
07.0904	0	0	3	9	11	18	4	7	2	3	-1	0
07.0906	3	5	0	0	26	45	0	0	3	4	-1	-3
07.0907	-14	-13	-2	-1	5	8	0	0	31	47	188	173
07.0999	0	0	0	-1	0	0	0	0	0	0	0	2
07.9900	111	136	-15	0	-31	-22	44	92	336	42*	18	19
CONSUMER AND HOMEMAKING												
09.0100 TOTAL	-102	-73	-491	-437	133	222	436	731	350	569	201	329
09.0101	-102	-73	-61	-437	20	34	45	72	29	42	11C	212
09.0102	0	0	0	0	82	138	82	138	41	96	7	10
09.0103	0	0	-29	-21	41	52	63	106	42	69	14	18
09.0104	0	0	-14	-3	6	10	42	71	37	58	8	9
09.0105	0	0	-3	-2	8	14	72	121	54	85	39	52
09.0107	0	0	-14	-10	38	63	72	121	98	169	14	15
09.0108	0	0	-1	-1	7	12	14	23	0	0	0	1
09.0109	0	0	-17	-12	4	7	39	65	23	38	8	10
09.0199	0	0	-1	-1	1	1	9	16	6	22	0	0
HOME ECONOMICS: OCCUPATIONAL												
09.0200 TOTAL	1	15	64	92	71	118	191	321	229	395	27	56
09.0201	1	4	59	46	44	42	44	108	41	92	4	9
09.0202	-7	-1	-1	3	22	36	21	34	14	21	22	37
09.0203	1	4	-10	-7	18	30	103	173	81	118	4	9
09.0204	-1	-1	0	0	1	1	2	4	1	2	-2	0
09.0205	0	0	32	41	1	1	1	2	13	19	1	2
09.0299	5	9	5	9	2	3	0	0	56	133	-1	1

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES		MAINE		MARYLAND		MASSACHUSETTS		MICHIGAN		MINNESOTA		MISSISSIPPI	
		1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
	OFFICE												
14.0000	TOTAL	-195	-28	522	895	447	1078	978	1642	488	874	158	284
14.0100		-104	-74	-44	-10	133	222	181	304	90	143	17	36
14.0201		-6	-4	-25	-2	12	21	94	157	12	18	21	26
14.0203		1	1	-3	0	3	4	5	9	6	12	20	20
14.0299		6	9	-11	-8	24	43	0	0	6	13	-32	-18
14.0300		-85	-61	-510	-364	65	109	36	61	129	194	102	132
14.0400		0	0	0	0	5	8	11	19	9	12	2	2
14.0500		0	0	0	0	4	7	3	4	0	0	0	0
14.0600		-1	-1	0	0	13	22	6	10	0	0	-1	-1
14.0700		-86	-59	-292	-208	125	209	286	481	137	212	44	80
14.0800		0	0	-29	-21	24	40	82	137	7	11	0	0
14.0900		-20	-14	-129	-92	230	383	273	459	58	92	-23	6
14.9900		103	124	1566	1601	5	9	0	0	38	171	0	0
	TECHNICAL												
16.0000	TOTAL	-16	-2	-106	-5	116	197	464	792	274	491	-3	24
16.0101		0	-1	0	0	1	2	0	0	2	3	0	0
16.0103		-1	-1	-7	-5	1	2	22	36	14	22	22	24
16.0104		-2	-2	-2	-1	2	3	34	59	0	0	0	0
16.0105		0	0	0	0	3	5	2	4	3	7	0	0
16.0106		-1	-1	-10	-7	5	9	21	36	10	15	1	2
16.0107		-2	-1	-3	-2	6	10	0	0	13	20	2	3
16.0109		4	5	45	70	18	30	64	110	78	120	3	5
16.0109		1	1	0	0	5	9	20	34	4	7	0	0
16.0110		0	0	0	0	3	5	23	39	5	7	0	0
16.0111		0	0	-7	-5	2	3	13	26	15	23	0	1
16.0112		-1	-1	0	0	0	0	0	1	2	3	0	0
16.0113		0	0	86	95	2	3	53	89	27	41	1	2
16.0114		0	0	0	0	0	0	6	9	5	7	0	0
16.0117		0	0	-22	-16	9	9	35	60	5	5	-1	-1
16.0601		-1	-1	0	0	0	0	6	9	1	1	0	0
16.0602		-1	-1	-18	-13	22	36	13	22	20	30	1	2
16.0603		2	2	-2	-1	0	0	1	1	0	0	0	0
16.0604		1	1	-2	-1	0	0	0	0	0	0	0	0
16.0605		-10	-6	-80	-57	38	64	84	141	2	2	-16	-10
16.9900		-1	0	-85	-61	-4	0	65	108	54	150	-15	-8
16.9901		0	0	0	0	0	0	0	0	0	0	0	0
16.9902		-1	-1	0	0	0	0	0	1	17	29	0	1
	TRADES AND INDUSTRY												
17.0000	TOTAL	133	327	266	569	907	1431	1256	2109	942	1709	392	704
17.0100		-11	-5	-7	5	12	20	19	32	2	9	9	16
17.0200		0	0	6	9	4	4	9	15	3	5	4	8
17.0301		1	3	9	17	33	54	34	59	21	33	2	12
17.0302		-4	5	23	71	94	159	220	370	90	142	46	72

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	MAINE		MARYLAND		MASSACHUSETTS		MICHIGAN		MINNESOTA		MISSISSIPPI	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
17.0399	-3	-2	-5	-3	11	19	2	4	16	29	11	13
17.0400	-2	-1	-1	0	0	0	8	14	-7	-6	1	2
17.0500	-5	-3	-4	-3	0	6	4	8	4	7	11	15
17.0600	0	0	4	7	3	4	5	8	1	2	1	1
17.0700	0	1	2	10	16	27	21	35	10	16	2	4
17.0800	0	0	0	0	0	0	0	0	0	0	0	0
17.0900	0	1	0	0	4	6	11	18	8	12	6	9
17.1001	-8	-5	-4	15	85	142	96	161	20	49	16	26
17.1002	-15	-8	27	28	52	87	24	40	5	8	-8	0
17.1004	0	2	3	21	8	13	2	4	-19	-12	10	17
17.1007	-7	-2	-10	2	49	66	19	32	-11	-6	9	13
17.1099	-1	0	-21	-15	-35	-25	-27	-19	-7	3	48	73
17.1100	-2	-1	2	4	3	4	6	11	4	6	3	5
17.1200	-3	-1	6	10	4	10	4	10	8	14	2	3
17.1300	-1	2	5	20	44	73	45	76	8	13	12	19
17.1400	-3	0	-35	-12	24	40	35	59	8	32	-17	3
17.1500	-2	0	16	29	42	69	57	96	17	28	1	8
17.1600	0	0	2	2	1	1	0	0	0	0	1	1
17.1703	-1	-1	-23	-16	1	1	33	56	7	10	5	10
17.1900	0	3	-44	-31	52	86	58	97	45	72	15	20
17.2000	0	0	0	0	0	0	0	0	0	0	0	0
17.2100	0	0	0	0	4	11	0	1	0	0	1	2
17.2200	0	0	-1	-1	3	5	1	2	0	0	1	1
17.2302	5	8	0	5	63	105	79	133	3	17	27	40
17.2303	-9	-6	6	9	5	8	0	0	10	15	0	1
17.2305	-3	-1	6	10	19	31	1	2	1	4	2	3
17.2306	-23	-12	-1	10	-58	-41	96	161	35	57	39	91
17.2307	0	0	0	0	81	84	0	0	4	6	1	1
17.2399	-7	-4	-8	-6	18	30	52	88	46	75	61	77
17.2400	-1	0	0	0	10	17	2	3	0	1	0	0
17.2601	0	0	0	1	0	0	0	0	-1	-1	1	2
17.2602	0	0	16	27	20	33	39	65	6	9	4	7
17.2699	0	0	0	0	0	0	0	0	0	1	0	1
17.2700	0	0	0	0	1	2	3	5	1	1	2	3
17.2801	0	0	30	35	36	40	11	18	8	13	4	8
17.2802	0	0	108	114	-22	-16	70	118	2	3	2	4
17.2899	-10	-7	-1	-1	5	8	80	135	-257	-194	1	3
17.2900	3	6	-15	-10	24	43	5	8	-3	8	10	23
17.3000	-2	-1	0	0	0	1	11	18	6	9	0	1
17.3100	-8	-4	-6	-5	18	31	46	78	11	16	5	7
17.3200	0	0	0	0	4	7	12	20	26	44	1	4
17.3300	-1	0	-22	-16	3	5	1	1	1	1	1	25
17.3400	-2	-1	0	0	2	3	0	0	0	0	1	3
17.3500	-1	0	1	2	88	47	3	4	2	3	-12	-6
17.3600	-4	-3	-15	-11	-9	11	10	16	-1	1	15	20
17.9900	258	344	216	233	77	94	46	61	803	1138	3	3

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	MISSOURI		MONTANA		NEBRASKA		NEVADA		NEW HAMPSHIRE		NEW JERSEY	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
AGRICULTURE												
01.0000 TOTAL	122	148	43	76	72	114	17	21	21	39	-5	15
01.0100	45	81	48	76	36	63	12	12	-1	0	4	12
01.0200	13	15	-2	-3	12	17	5	1	0	0	1	5
01.0300	12	1	-6	-4	15	19	9	7	8	11	1	2
01.0400	10	10	0	0	8	4	0	0	0	1	1	0
01.0500	2	4	0	0	3	5	2	3	10	14	-15	-5
01.0600	13	12	0	0	3	3	0	0	0	5	0	1
01.0700	10	6	-5	-4	0	0	0	1	4	8	0	0
01.9900	17	17	4	4	2	3	-2	-5	-0	0	3	4
DISTRIBUTION												
14.0000 TOTAL	207	374	13	18	33	47	0	11	10	21	21	113
14.0100	1	2	0	0	0	1	0	0	0	0	-1	-1
14.0200	3	5	1	1	1	2	0	0	0	0	23	28
14.0300	4	7	0	0	0	1	0	0	0	0	1	2
14.0400	3	6	0	0	1	2	-6	-4	0	0	-13	-8
14.0500	1	3	0	0	1	1	-1	0	0	0	1	1
14.0600	7	12	0	0	0	1	0	0	0	0	6	11
14.0700	54	127	0	0	2	4	0	0	-1	2	11	18
14.0800	90	137	9	14	11	20	1	8	-1	12	5	13
14.0900	2	4	0	0	0	1	0	0	0	0	2	3
14.1000	1	1	0	0	0	1	0	0	0	0	2	3
14.1100	2	3	1	0	1	2	4	7	0	0	-5	-4
14.1200	2	3	0	0	-1	-1	1	1	0	0	1	1
14.1300	3	5	0	0	-3	-2	0	0	0	0	0	0
14.1400	0	0	0	0	0	0	0	0	0	0	0	0
14.1500	3	6	0	0	1	3	0	0	0	0	1	4
14.1600	2	4	0	0	0	0	0	0	0	0	1	1
14.1700	0	0	0	0	0	0	1	2	0	0	-26	-18
14.1800	1	2	0	0	1	1	0	0	0	0	-15	-10
14.1900	4	7	0	0	2	3	-1	0	0	0	0	0
14.2000	1	2	0	1	-2	-2	0	0	0	0	28	27
14.3100	0	1	0	0	0	0	0	0	0	0	-2	-1
14.9900	21	37	2	2	-2	0	-4	-4	2	4	6	40
HEALTH												
17.0000 TOTAL	48	149	25	36	146	241	36	91	2	23	65	348
17.0101	1	5	1	2	6	6	11	19	0	1	14	23
17.0102	3	3	0	0	0	0	-1	-1	1	1	6	8
17.0103	0	1	0	0	1	2	0	0	0	0	8	9
17.0199	2	2	0	0	0	0	0	0	-1	-1	0	0
17.0203	1	2	0	0	0	0	10	19	0	2	34	51
17.0299	-4	-3	0	0	-1	0	-1	0	0	0	-3	-1

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	MISSOURI		MONTANA		NEBRASKA		NEVADA		NEW HAMPSHIRE		NEW JERSEY	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
07.0301	3	15	0	3	0	0	-2	2	0	0	-77	-91
07.0302	24	33	10	12	24	43	1	4	1	8	-44	-41
07.0303	-15	-5	11	16	-35	-5	17	25	-1	-1	-13	-4
07.0305	1	2	0	0	-3	-2	0	0	0	1	3	0
07.0399	14	41	0	0	-27	-19	3	9	-4	-3	132	145
07.0401	0	0	0	0	0	0	0	0	1	1	1	1
07.0402	-3	-2	0	0	0	0	-1	0	2	2	5	5
07.0499	0	0	0	0	0	0	0	0	0	0	0	0
07.0501	-3	-1	0	0	0	0	0	0	-1	-1	-2	-4
07.0503	0	0	0	0	0	0	0	0	0	0	0	0
07.0599	0	0	0	0	0	0	0	0	1	1	2	2
07.0600	-1	-1	0	0	0	1	0	0	0	0	-2	-2
07.0700	0	0	0	0	0	0	0	0	0	0	-2	-2
07.0800	-2	-1	0	0	-8	-3	0	4	0	0	3	3
07.0803	-2	-1	1	1	0	0	0	0	1	1	4	8
07.0804	-3	-2	0	0	-3	0	7	11	1	2	6	15
07.0806	35	42	0	0	0	0	0	0	-1	0	-2	-2
07.0807	10	15	1	1	0	0	-4	-4	-1	-1	-1	-1
07.0899	2	3	0	0	0	0	0	0	-19	-21	0	0
07.9900	-15	-2	1	1	206	220	-5	-3	-16	-11	22	30
CONSUMER AND HOMEMAKING												
09.0100 TOTAL	234	391	10	51	153	320	96	116	86	136	-906	-635
09.0101	72	120	6	30	135	279	22	27	8	12	-933	-663
09.0102	26	44	0	1	-2	-2	10	13	3	6	0	0
09.0103	33	55	2	8	-25	-18	16	19	7	11	0	0
09.0104	9	15	0	1	-9	-5	2	3	1	2	0	0
09.0106	24	40	1	3	-3	-2	3	7	4	8	0	0
09.0107	45	75	1	5	-20	-15	16	18	13	20	0	0
09.0108	2	4	0	0	-2	-1	3	3	0	0	0	0
09.0109	14	23	0	2	-15	-11	7	8	2	3	0	0
09.0199	8	14	0	1	94	95	15	18	48	76	29	29
HOME ECONOMICS OCCUPATIONAL												
09.0200 TOTAL	105	193	33	43	-27	-18	11	24	6	18	-43	-25
09.0201	15	29	0	2	-3	-2	8	10	4	10	-14	-11
09.0202	16	35	1	2	146	146	-2	-2	-2	0	-16	-13
09.0203	47	75	1	5	-10	-7	7	10	4	8	-2	-2
09.0204	6	12	7	7	-6	-4	0	0	0	0	-1	-1
09.0205	15	31	11	11	-3	-2	0	0	0	0	0	-1
09.0299	6	12	13	14	-5	-3	-1	4	0	0	-16	-11

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES		MISSOURI		MONTANA		NEBRASKA		NEVADA		NEW HAMPSHIRE		NEW JERSEY	
		1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
	OFFICE												
6.0000	TOTAL	323	592	40	78	84	154	115	185	-134	-38	1041	1923
6.0100		51	104	0	3	13	21	28	48	-41	-25	217	379
6.0201		18	36	1	1	-7	-5	-2	-2	-1	-1	16	36
6.0203		10	17	0	1	0	0	-2	-1	-1	0	-17	-12
6.0299		7	10	-5	-4	10	11	23	23	-1	-1	137	174
6.0300		155	195	12	20	23	39	41	54	-8	-4	96	190
6.0400		3	10	0	0	0	0	-4	-3	-3	-1	13	15
6.0500		0	0	0	0	0	0	0	0	0	0	5	8
6.0600		0	1	1	2	1	1	11	12	0	0	0	1
6.0700		94	161	22	37	24	42	8	21	-23	-15	235	407
6.0800		10	17	-1	0	5	8	16	23	-3	0	-1	10
6.0900		-3	56	4	12	56	63	19	26	-36	-25	261	603
6.9900		-22	-16	4	6	-41	-28	-20	-14	-18	-1	30	111
	TECHNICAL												
6.0000	TOTAL	126	198	16	22	-4	-3	45	55	-4	0	332	598
6.0101		1	2	0	0	0	0	-2	-2	0	0	-5	-4
6.0103		0	0	0	1	0	0	10	11	0	1	-7	-4
6.0104		8	13	0	0	0	0	-3	-2	0	0	21	38
6.0105		0	1	0	0	0	0	2	1	0	0	4	11
6.0106		2	4	2	3	0	0	27	28	1	1	1	11
6.0107		3	6	1	2	0	0	-2	-1	0	0	0	3
6.0108		13	20	8	9	-1	-1	8	9	-4	-3	106	137
6.0109		6	8	2	2	0	0	0	0	4	4	-1	-2
6.0110		4	7	0	0	-1	-1	0	0	0	0	-1	-1
6.0111		1	2	0	0	0	0	-1	-1	0	0	-7	-4
6.0112		2	2	0	0	0	0	0	0	0	0	-1	-1
6.0113		8	11	0	0	0	0	-1	-1	1	1	8	14
6.0114		0	1	0	0	0	0	-1	-1	0	0	0	0
6.0117		27	36	0	0	0	0	0	0	0	0	-59	-39
6.0601		-1	-1	0	0	0	0	0	0	0	0	0	0
6.0602		10	16	0	0	-1	-1	18	19	-6	-3	0	0
6.0603		0	0	0	0	0	0	0	0	0	0	0	0
6.0604		0	0	0	0	0	0	0	0	0	0	0	0
16.0605		28	44	0	0	0	0	-3	-2	0	0	143	150
16.9900		-11	-3	3	4	0	0	-1	-2	-1	-1	140	284
16.9901		3	4	0	0	0	0	0	0	0	0	0	0
16.9902		23	26	0	0	0	0	0	0	0	0	-11	-8
	TRADES AND INDUSTRY												
17.0000	TOTAL	713	1131	90	156	100	251	19	50	-65	17	-299	181
17.0100		28	49	0	1	7	12	0	0	0	1	29	49
17.0200		-5	-3	2	2	0	1	-1	0	0	0	0	6
17.0301		29	46	1	2	5	8	1	1	0	1	12	21
17.0302		66	106	12	25	30	51	11	14	18	26	84	118

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*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE I9 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1980 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	MISSOURI		MONTANA		NEBRASKA		NEVADA		NEW HAMPSHIRE		NEW JERSEY	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
17.0399	4	8	0	0	2	4	-4	-3	2	3	-90	-82
17.0400	3	8	0	0	3	8	-2	-3	0	0	-14	-14
17.0500	2	4	0	0	-4	-5	0	0	-1	-1	-19	-16
17.0600	3	5	0	0	0	0	0	0	-1	-1	-10	-10
17.0700	16	27	0	0	2	3	0	0	-2	-2	14	25
17.0800	0	0	0	0	0	0	0	0	0	0	0	0
17.0900	3	3	-1	0	-4	-5	-1	0	2	2	-11	-17
17.1001	186	256	10	16	17	25	7	11	9	13	-51	-77
17.1002	5	12	-1	0	2	3	0	0	-4	-5	-51	-16
17.1004	28	43	0	0	3	3	0	0	1	1	0	0
17.1007	19	32	-3	-3	3	4	-3	-2	1	1	-2	-1
17.1099	29	38	-6	-8	-10	-7	-3	-3	-1	-1	2	4
17.1100	6	9	0	1	17	29	0	0	1	1	0	0
17.1200	6	11	1	1	7	11	0	0	1	1	0	0
17.1300	5	17	12	19	12	20	0	0	1	10	15	31
17.1400	35	48	-2	-1	11	18	-1	-1	-1	-1	-110	-4
17.1500	38	64	1	1	1	1	-1	-1	-1	-1	40	59
17.1600	0	0	0	0	0	0	0	0	0	0	0	0
17.1700	0	1	0	0	-7	-5	0	1	-1	-1	0	0
17.1900	34	57	1	2	2	4	1	2	0	0	0	18
17.2000	0	0	0	0	0	0	0	0	0	0	0	0
17.2100	-1	-1	0	0	-2	-2	0	0	0	0	0	0
17.2200	-1	0	0	0	-2	-2	0	0	0	0	0	0
17.2302	41	69	6	10	-32	-23	1	1	-1	-1	-1	0
17.2303	2	3	0	0	0	0	0	0	0	0	0	0
17.2305	-1	-1	0	0	0	0	0	0	0	0	-1	-1
17.2306	51	78	20	31	-37	-27	1	1	-1	-1	-1	-1
17.2307	2	3	0	0	0	0	0	0	0	0	0	0
17.2399	-1	0	0	1	109	99	0	0	-1	-1	0	0
17.2400	-1	1	0	1	-3	-2	0	0	0	0	0	0
17.2601	0	0	0	0	0	0	0	0	0	0	0	0
17.2602	5	8	1	1	0	0	0	0	0	0	-16	-16
17.2699	2	2	0	0	0	0	0	0	0	0	-1	-1
17.2700	3	4	0	1	0	0	0	0	0	0	-1	-1
17.2801	-2	-3	0	0	-34	-24	-2	-3	-6	-4	-32	-30
17.2802	-2	-1	0	0	-7	-5	-1	-1	-1	-1	-30	-30
17.2899	-2	-1	0	0	58	63	-1	-1	0	0	0	0
17.2900	-2	-2	0	0	0	0	-1	-1	0	0	-1	-1
17.3000	11	16	1	2	2	3	0	0	-1	-1	-11	-16
17.3100	19	30	8	13	3	4	0	0	-1	-1	-11	-14
17.3200	9	10	0	0	-9	-6	0	0	0	0	-2	-2
17.3300	10	14	0	0	0	0	0	0	0	0	-11	-10
17.3400	0	0	0	0	0	0	0	0	0	0	0	0
17.3500	30	33	0	0	-20	-14	-1	-1	-1	0	-1	-2
17.3600	10	16	9	9	-15	-11	11	11	-4	-3	-12	-14
17.9900	-5	-2	14	15	-17	-16	14	13	7	10	-115	-85

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	NEW MEXICO 1979	NEW MEXICO 1981	NEW YORK 1979	NEW YORK 1981	NORTH CAROLINA 1979	NORTH CAROLINA 1981	NORTH DAKOTA 1979	NORTH DAKOTA 1981	OHIO 1979	OHIO 1981	OKLAHOMA 1979	OKLAHOMA 1981
AGRICULTURE												
01.0000 TOTAL	35	56	155	256	130	302	48	117	440	711	-11	96
01.0100	42	59	38	62	-6	10	36	62	239	401	34	95
01.0200	-5	-1	-6	-4	2	3	4	7	-2	8	-6	-4
01.0300	-5	-1	25	34	17	66	10	19	49	69	-9	-1
01.0400	0	0	10	8	0	3	2	3	17	31	-4	-3
01.0500	-8	-6	41	65	42	73	2	4	117	146	8	17
01.0600	0	0	-51	-37	7	14	4	6	29	40	-5	-3
01.0700	0	0	0	0	11	18	1	2	4	9	-2	-1
01.9900	5	5	98	128	61	102	8	14	15	30	-34	-15
DISTRIBUTION												
04.0000 TOTAL	32	53	341	484	236	395	24	43	400	688	-32	1
04.0100	1	1	32	42	17	31	0	0	36	46	-1	-1
04.0200	1	2	33	40	11	19	33	39	6	6	-5	-4
04.0300	0	0	6	8	2	3	-1	-1	12	15	-2	-1
04.0400	0	0	8	14	14	29	-1	0	8	34	-1	0
04.0500	0	0	0	0	2	2	0	0	6	7	-1	-1
04.0600	2	4	2	5	194	201	-1	-1	2	8	-7	-10
04.0700	3	4	0	0	-115	-74	-3	-2	11	22	-6	-4
04.0800	19	32	189	275	34	56	-8	-6	183	309	-8	-6
04.0900	0	1	0	0	1	2	-1	-1	2	3	-1	-1
04.1000	0	0	1	2	1	2	-1	-1	6	9	-1	-1
04.1100	0	0	11	16	2	3	-1	-1	4	7	-1	-1
04.1200	0	0	0	0	-3	-3	-1	0	5	6	-1	0
04.1300	1	2	0	0	6	11	-1	-1	15	20	0	0
04.1400	0	0	0	0	0	0	0	1	0	1	0	0
04.1500	0	0	0	0	3	4	-1	-1	63	64	-3	-2
04.1600	0	1	0	0	1	1	0	0	-1	0	-1	0
04.1700	0	0	-1	-1	28	49	2	0	-9	26	-17	-12
04.1800	0	1	18	27	5	8	0	0	13	14	-1	-1
04.1900	0	1	6	9	13	20	0	0	-13	-6	-1	-1
04.2000	1	1	0	0	57	58	-3	-2	0	0	-14	-10
04.3100	0	0	0	0	0	0	6	7	-19	-13	0	0
04.9900	1	1	34	44	-33	-23	11	14	62	109	48	56
HEALTH												
07.0000 TOTAL	22	75	495	936	279	567	39	69	243	507	-27	15
07.0101	-2	0	51	71	3	6	0	1	26	38	-2	-1
07.0102	0	0	8	19	-7	3	1	2	8	13	-1	-1
07.0103	0	0	7	11	-2	0	0	0	5	6	0	0
07.0199	0	0	0	0	0	0	0	0	0	0	0	0
07.0203	0	2	45	101	-6	-6	0	0	10	14	0	0
07.0299	1	1	0	0	0	0	0	0	10	14	0	0

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1978 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	NEW MEXICO 1978	NEW MEXICO 1981	NEW YORK 1978	NEW YORK 1981	NORTH CAROLINA 1978	NORTH CAROLINA 1981	NORTH DAKOTA 1978	NORTH DAKOTA 1981	OHIO 1978	OHIO 1981	OKLAHOMA 1978	OKLAHOMA 1981
07.0301	-17	-8	422	606	24	40	1	2	45	60	-5	0
07.0302	6	10	-190	-134	34	42	3	4	38	83	3	8
07.0303	-32	-21	76	117	34	121	28	43	7	22	-40	-24
07.0305	0	0	-1	1	1	2	0	0	1	2	-2	-1
07.0399	0	0	21	23	0	0	2	4	14	16	0	0
07.0401	0	0	-14	-10	0	0	0	1	3	3	0	1
07.0402	0	0	0	0	4	6	0	0	2	2	-1	0
07.0499	0	0	0	0	0	0	0	0	0	0	0	0
07.0501	2	2	6	13	2	4	0	0	14	15	0	1
07.0503	0	0	0	0	0	1	0	0	1	1	0	0
07.0599	0	0	0	0	0	0	0	0	0	0	0	0
07.0600	0	0	-13	-10	1	1	0	0	3	4	0	0
07.0700	0	0	-5	-4	0	0	0	0	1	1	0	0
07.0800	0	0	-10	-2	0	4	0	0	8	12	0	0
07.9903	1	1	-13	-9	2	4	0	0	10	12	0	0
07.9904	-3	-2	8	24	46	78	0	0	29	37	-4	-3
07.9906	-1	0	-5	-2	3	5	0	0	4	5	0	0
07.9907	0	0	-5	-2	67	104	0	0	-103	6	-1	0
07.9909	0	0	3	4	1	1	0	0	1	1	0	0
07.9900	67	88	100	119	79	120	4	7	104	131	25	27
CONSUMER AND HOMEMAKING												
09.0100 TOTAL	99	160	-1695	-1211	1201	1387	80	153	905	1462	10	99
09.0101	38	61	-394	-281	146	214	25	47	446	717	-211	-150
09.0102	3	5	-157	-112	85	43	5	8	38	43	0	0
09.0103	17	29	-156	-112	71	42	9	16	60	97	-6	-4
09.0104	1	2	-58	-41	14	16	3	5	13	21	230	233
09.0106	8	15	-49	-35	142	164	16	18	64	109	14	29
09.0107	25	40	-121	-86	48	78	18	28	61	98	-3	-2
09.0108	1	1	-40	-28	0	0	0	0	10	16	-2	-1
09.0109	4	6	-38	-27	30	35	7	14	34	54	-3	-2
09.0199	2	3	-692	-497	696	759	9	14	144	303	-1	-1
HOME ECONOMICS: OCCUPATIONAL												
09.0200 TOTAL	24	43	813	902	-398	-123	19	33	425	491	48	81
09.0201	-12	-8	141	160	28	65	12	18	108	187	3	13
09.0202	-3	-2	198	203	-494	-334	0	0	44	95	2	9
09.0203	-5	-1	253	286	-12	24	7	14	91	167	21	32
09.0204	-2	-1	123	118	-91	-53	0	1	22	50	-2	-1
09.0205	0	0	43	47	143	149	0	0	58	81	0	0
09.0299	46	56	55	57	3	4	-1	0	144	175	21	24

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	NEW MEXICO 1979	NEW MEXICO 1981	NEW YORK 1979	NEW YORK 1981	NORTH CAROLINA 1979	NORTH CAROLINA 1981	NORTH DAKOTA 1979	NORTH DAKOTA 1981	OHIO 1979	OHIO 1981	OKLAHOMA 1979	OKLAHOMA 1981
OFFICE												
14.0000 TOTAL	54	139	2524	3739	381	702	28	122	915	1549	-22	156
14.0100	4	8	632	855	32	57	12	19	10	139	-16	19
14.0201	0	0	317	315	-18	-7	-8	-6	238	249	-1	-1
14.0203	-1	0	0	0	57	68	0	0	-49	-35	10	14
14.0299	-6	-4	-232	-145	-5	-1	13	13	-142	-101	-18	-13
14.0300	-73	-52	2285	2324	95	121	14	20	239	337	14	37
14.0400	0	0	6	7	2	4	1	1	33	43	1	1
14.0500	0	0	8	7	0	1	2	3	15	19	0	0
14.0600	0	0	0	0	-118	-58	1	2	-15	-6	0	0
14.0700	-25	-12	547	790	19	58	21	34	271	440	14	47
14.0800	-1	-1	70	165	52	161	2	3	-62	-17	-4	7
14.0900	6	10	-1441	-1029	94	113	20	31	164	242	-27	-19
14.9900	151	189	335	470	148	186	1	1	214	249	48	63
TECHNICAL												
16.0000 TOTAL	7	28	220	358	127	334	21	33	130	282	0	0
16.0101	0	0	10	20	0	0	2	2	3	6	0	0
16.0103	-2	-2	13	25	4	8	3	5	1	4	0	0
16.0104	-3	-2	13	13	1	5	0	0	11	19	0	0
16.0105	0	0	2	4	3	2	0	0	3	4	0	0
16.0106	-1	0	14	28	19	37	1	2	7	13	0	0
16.0107	0	0	1	25	44	52	5	9	10	20	0	0
16.0108	11	18	36	50	16	32	7	9	14	25	0	0
16.0109	1	2	5	8	2	4	0	1	8	14	0	0
16.0110	0	0	1	1	0	5	2	3	2	4	0	0
16.0111	-1	-1	22	28	37	74	2	3	2	9	0	0
16.0112	0	0	6	6	0	0	0	0	5	7	0	0
16.0113	1	3	21	44	10	18	1	2	4	14	0	0
16.0114	0	1	1	1	0	0	1	2	-2	0	0	0
16.0117	0	0	1	2	0	0	0	1	0	0	0	0
16.0601	0	0	1	2	0	0	0	0	0	0	0	0
16.0602	0	0	0	0	1	2	0	0	0	11	0	0
16.0603	0	0	0	0	0	0	0	0	0	0	0	0
16.0604	0	0	1	2	0	4	0	0	0	0	0	0
16.0605	0	0	0	0	11	24	0	0	27	44	0	0
16.9800	0	5	73	94	-22	-16	2	3	43	89	0	0
16.9901	0	0	0	0	0	0	0	0	0	0	0	0
16.9902	1	2	0	0	0	1	0	0	0	0	0	0
TRADES AND INDUSTRY												
17.0000 TOTAL	119	305	1393	2179	2404	3939	122	190	3936	5263	5	212
17.0100	-2	-1	-84	-44	16	35	1	2	111	136	-3	-2
17.0200	3	8	-1	3	5	8	0	0	50	54	1	3
17.0301	-1	0	0	0	11	26	4	8	179	209	-7	0
17.0302	-45	-14	-479	-342	133	242	29	39	469	487	9	26

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	NEW MEXICO		NEW YORK		NORTH CAROLINA		NORTH DAKOTA		OHIO		OKLAHOMA	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
17.0399	-2	-1	736	708	10	31	-1	-1	34	42	-1	0
17.0402	-2	-1	32	22	14	21	0	0	38	38	-4	-3
17.0500	0	0	0	0	-16	-12	0	1	0	0	-1	-1
17.0600	0	0	0	0	2	3	0	0	9	12	0	0
17.0700	-1	-1	74	94	7	17	2	3	79	66	-2	0
17.0800	0	0	0	0	23	32	0	0	14	18	0	0
17.0903	0	0	28	38	6	61	1	2	10	22	0	1
17.1001	-17	-4	0	0	93	149	22	28	135	181	26	41
17.1002	9	13	0	0	84	132	0	0	169	211	-4	0
17.1004	3	5	0	0	81	142	0	0	38	48	-2	4
17.1007	3	7	0	0	11	16	1	2	77	103	-2	0
17.1099	3	10	-298	-213	-244	-176	0	0	327	403	-14	-10
17.1100	0	0	41	50	2	3	4	9	21	24	-4	-3
17.1200	6	8	0	0	14	17	3	4	48	52	4	6
17.1300	-12	-7	51	80	95	163	2	4	174	176	-1	11
17.1400	-5	-2	-8	79	21	31	4	9	10	15	-21	-15
17.1500	-15	-8	45	87	32	43	14	24	243	444	19	29
17.1600	0	0	0	0	0	0	0	0	0	0	0	1
17.1700	0	0	0	0	198	280	0	0	19	57	-1	-1
17.1900	-10	-7	43	73	24	40	3	4	82	122	-11	-10
17.2000	0	0	0	0	0	0	2	3	1	1	0	0
17.2100	0	1	0	0	1	1	0	0	2	2	-1	0
17.2200	0	0	3	4	3	4	0	0	0	0	0	0
17.2302	-3	0	0	0	59	77	1	2	215	353	-2	8
17.2303	0	0	0	0	23	26	0	0	14	21	-1	0
17.2305	0	3	0	0	2	3	1	1	24	38	-4	0
17.2306	3	11	0	0	-4	42	12	19	226	302	-22	-3
17.2307	0	0	0	0	7	9	0	0	33	45	0	0
17.2399	-13	-10	123	195	7	7	4	5	20	24	-3	-2
17.2400	0	0	0	0	0	0	0	0	2	3	-1	-1
17.2601	0	1	0	0	0	0	0	0	0	1	0	0
17.2602	-5	-3	0	0	3	21	0	0	145	159	6	9
17.2699	0	0	86	122	15	17	0	0	0	0	0	0
17.2700	0	0	0	0	17	24	0	0	3	4	0	0
17.2801	0	0	0	0	843	959	0	0	122	126	-60	-41
17.2802	0	0	39	69	159	240	0	0	46	122	23	24
17.2804	0	0	-116	-74	4	6	0	0	73	86	-1	-1
17.2900	-6	-2	25	60	-2	9	0	0	8	8	-1	-1
17.3000	-1	0	0	0	0	0	0	0	21	23	0	0
17.3100	-1	0	0	0	59	91	5	5	70	88	-5	0
17.3200	0	0	0	0	0	0	0	0	42	67	-2	-1
17.3300	0	0	21	43	84	146	0	0	0	0	-1	0
17.3400	0	0	0	0	-1	0	0	0	0	0	-1	0
17.3500	-2	-2	0	0	0	1	0	0	14	15	-2	0
17.3600	-9	-6	0	0	92	137	0	0	14	20	-7	-5
17.9900	242	308	1042	1100	485	507	8	12	497	795	111	144

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	OREGON		PENSYLVANIA		RHODE ISLAND		SOUTH CAROLINA		SOUTH DAKOTA		TENNESSEE	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
AGRICULTURE												
01.0000 TOTAL	231	311	185	289	8	10	72	122	43	74	132	186
01.0100	88	99	131	204	2	3	-13	19	36	49	95	128
01.0200	8	15	0	0	0	0	-1	0	-1	1	1	2
01.0300	16	28	12	19	0	1	-3	3	-1	1	29	34
01.0400	-3	-4	0	0	0	0	-2	-4	0	0	-1	-1
01.0500	53	58	35	55	1	2	7	9	0	0	2	24
01.0600	45	49	2	3	2	3	1	1	0	0	-1	0
01.0700	35	44	3	4	0	0	1	2	0	0	-2	-1
01.9900	-16	13	3	5	0	2	88	88	6	8	-4	-4
DISTRIBUTION												
04.0000 TOTAL	58	123	128	197	21	35	74	138	21	37	104	169
04.0100	2	2	0	0	0	0	4	6	0	0	0	1
04.0200	-1	0	0	0	-1	-1	-10	-7	-2	-1	4	6
04.0300	4	8	0	0	-3	-2	-3	-2	-1	-1	4	5
04.0400	-36	-20	1	3	0	0	-2	-1	-1	0	10	13
04.0500	-1	-1	1	1	0	0	-1	-1	2	2	5	7
04.0600	20	22	0	0	0	0	-4	-4	-4	-5	6	10
04.0700	-4	-3	0	1	-1	-1	-5	-4	-6	-4	6	10
04.0800	56	58	113	167	23	34	-37	-23	46	83	16	28
04.0900	5	6	0	0	0	0	-1	-1	-1	-1	0	1
04.1000	-1	0	0	0	0	0	2	3	0	0	0	1
04.1100	5	6	1	2	0	0	37	43	-1	0	0	1
04.1200	0	0	1	2	0	0	-24	-18	-1	-1	2	2
04.1300	7	11	0	0	0	0	-2	-1	0	2	3	4
04.1400	0	0	0	0	0	0	0	0	2	2	1	1
04.1500	0	0	0	0	0	0	-4	-3	-3	-2	2	4
04.1600	0	0	0	0	0	0	-1	0	-1	-1	0	1
04.1700	-12	-3	1	3	1	1	-1	-1	0	1	16	20
04.1800	13	14	0	0	1	1	-1	-1	0	0	4	6
04.1900	-3	-2	4	6	1	1	1	3	0	0	0	2
04.2000	-5	-3	2	4	-2	-1	-8	-7	-3	-2	2	3
04.3100	0	0	0	0	0	0	135	191	0	0	1	1
04.9900	7	28	0	0	2	3	5	9	-1	5	19	43
HEALTH												
07.0000 TOTAL	341	486	372	615	49	90	95	199	38	88	179	304
07.0101	18	27	21	35	1	1	0	4	0	1	6	10
07.0102	13	15	3	4	0	0	2	3	0	0	2	3
07.0103	9	16	4	7	0	0	1	2	0	0	3	5
07.0199	-1	-1	0	0	0	0	0	0	0	0	1	1
07.0203	24	29	12	20	-3	0	4	11	1	1	0	3
07.0299	-1	-1	8	13	-2	-1	-1	-1	0	0	0	13

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	OREGON		PENNSYLVANIA		RHODE ISLAND		SOUTH CAROLINA		SOUTH DAKOTA		TENNESSEE	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
07.0321	123	147	44	73	14	23	7	13	0	0	4	7
07.0322	41	53	103	171	4	7	1	13	7	10	-10	6
07.0323	141	160	4	67	4	7	-4	2	21	34	18	35
07.0505	6	7	1	1	0	0	2	4	0	0	-2	-1
07.0399	-19	-13	7	12	0	0	0	0	3	5	8	10
07.0401	4	4	1	1	0	0	0	0	0	0	0	0
07.0402	5	5	3	4	0	0	1	2	0	0	-1	-1
07.0499	3	3	0	0	0	0	0	0	0	0	0	0
07.0501	26	31	0	0	2	4	4	8	0	0	-2	-3
07.0502	0	0	0	1	0	0	0	0	0	0	0	0
07.0503	-1	-1	0	0	0	0	0	0	0	0	0	0
07.0600	-2	-2	0	0	0	0	1	2	0	0	-1	-1
07.0700	-3	-3	0	0	-2	-1	0	0	0	0	-2	-3
07.0800	-4	-3	4	7	2	2	0	0	0	0	4	6
07.0903	9	10	4	7	2	2	2	4	-1	-1	3	7
07.0904	5	11	22	36	6	6	1	2	-2	-1	-1	0
07.0905	-2	-1	-43	-41	9	10	0	0	0	0	36	47
07.0907	-29	-17	8	14	0	0	-3	-2	0	0	-10	-8
07.0908	4	4	0	0	0	0	0	0	0	0	0	1
07.9900	-20	3	147	180	15	26	64	86	3	4	105	134
CONSUMER AND HOMEMAKING TOTAL	-384	-275	656	1038	65	113	168	270	0	33	110	245
09.0101	-381	-272	553	850	40	52	39	73	-1	21	37	111
09.0102	-1	-1	1	2	1	2	18	26	0	0	14	13
09.0103	0	0	75	112	2	3	12	35	-2	0	16	34
09.0104	-1	-1	1	2	37	69	9	12	0	0	1	2
09.0105	0	0	1	1	0	0	39	52	4	5	13	15
09.0106	-1	-1	10	43	-1	0	4	21	0	0	13	32
09.0107	0	0	2	4	1	1	0	0	0	0	0	0
09.0199	0	0	10	15	0	0	4	12	-2	0	8	15
	0	0	3	4	-15	-11	45	49	-2	-1	19	27
HOME ECONOMICS: OCCUPATIONAL TOTAL	29	93	138	227	9	14	27	50	20	25	121	194
09.0200	6	45	20	40	6	8	8	21	1	1	84	88
09.0201	-3	-2	17	29	1	2	1	2	1	2	19	30
09.0202	-14	0	97	154	1	3	10	19	9	13	59	59
09.0203	0	0	0	0	1	1	1	2	0	0	3	4
09.0204	2	5	3	3	0	0	-1	0	0	0	0	0
09.0205	38	46	1	2	-1	0	6	6	9	9	-6	14
09.0299												

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	OREGON		PENNSYLVANIA		RHODE ISLAND		SOUTH CAROLINA		SOUTH DAKOTA		TENNESSEE	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
OFFICE												
14.0000 TOTAL	288	556	1201	2041	118	171	388	484	31	47	316	512
14.0100	33	80	245	386	15	19	35	61	2	4	47	87
14.0201	2	4	0	0	-1	0	4	4	0	0	19	21
14.0203	19	23	4	2	4	6	7	14	0	1	20	42
14.0299	13	20	80	138	5	6	1	3	0	0	4	11
14.0300	-44	35	297	479	1	3	210	372	29	33	36	66
14.0400	49	83	0	0	0	0	0	0	0	0	2	2
14.0500	10	12	0	0	0	0	0	0	0	0	1	2
14.0600	12	15	0	0	0	0	0	0	0	0	8	10
14.0700	61	160	418	664	3	9	63	128	-6	0	90	86
14.0800	46	76	82	119	-17	-10	36	68	0	0	78	110
14.0900	28	35	143	230	-9	-1	0	0	4	8	17	45
14.9900	0	0	15	24	114	139	32	35	2	3	14	33
TECHNICAL												
16.0000 TOTAL	102	215	445	745	0	13	117	220	-1	-1	107	204
16.0101	-7	-5	2	3	-2	-1	0	0	0	0	0	0
16.0103	-2	-2	23	39	0	0	5	10	0	0	25	35
16.0104	-8	-6	3	5	0	0	0	0	0	0	-1	-1
16.0105	8	9	8	14	2	3	1	3	0	0	2	1
16.0106	88	100	21	35	0	1	12	22	-1	-1	16	22
16.0107	-7	-5	38	63	-1	0	5	4	0	0	31	45
16.0108	79	101	87	145	1	4	22	41	0	0	19	36
16.0109	3	8	1	1	1	1	2	3	0	0	0	0
16.0110	2	2	6	10	6	9	4	9	0	0	3	4
16.0111	9	14	13	22	0	2	12	22	0	0	6	12
16.0112	2	2	2	3	1	1	2	4	0	0	2	3
16.0113	21	40	20	34	1	4	6	18	0	0	23	32
16.0114	0	0	2	3	0	0	0	0	0	0	0	0
16.0117	0	0	46	75	0	0	0	0	0	0	0	0
16.0601	10	11	0	0	0	0	0	0	0	0	0	0
16.0602	-15	1	17	29	-13	-8	2	4	0	0	21	16
16.0603	-38	-27	9	16	1	0	2	2	0	0	3	6
16.0604	-1	-1	0	0	1	1	0	2	0	0	2	0
16.0605	-28	-20	30	52	1	0	37	69	0	0	21	32
16.9300	0	1	117	185	-2	-1	4	11	0	0	18	33
16.9901	0	0	0	0	0	0	0	0	0	0	14	16
16.9902	-11	-8	0	0	1	2	1	1	0	0	6	9
TRADES AND INDUSTRY												
17.0000 TOTAL	777	1173	1805	2813	156	240	496	823	71	132	1032	1704
17.0100	9	11	34	53	1	2	13	27	-2	-1	39	54
17.0200	7	8	22	34	2	3	7	11	0	0	12	16
17.0301	49	60	84	132	11	14	14	23	3	5	47	65
17.0302	171	226	180	279	29	38	44	91	7	17	111	170

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (15%) ANNUAL TURNOVER RATE

PROGRAM CODES	OREGON		PENNSYLVANIA		RHODE ISLAND		SOUTH CAROLINA		SOUTH DAKOTA		TENNESSEE	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
17.0399	-18	-13	23	35	-2	-1	1	2	0	1	19	25
17.0600	-14	-11	3	8	0	0	-1	-1	-1	0	-3	0
17.0900	-14	-13	13	21	2	4	5	6	0	0	8	12
17.0600	21	24	1	1	0	0	0	1	0	0	1	1
17.0700	0	0	55	83	6	9	8	16	0	0	1	13
17.0800	0	2	0	0	0	0	0	0	0	0	0	0
17.0900	-7	-6	8	11	0	0	-2	-1	0	0	3	4
17.1001	100	114	137	212	12	19	36	52	12	20	21	41
17.1002	-5	-3	49	75	11	14	16	24	0	0	11	17
17.1006	-4	-4	54	84	0	0	28	40	0	0	8	10
17.1007	-4	-4	60	95	-1	-2	7	14	1	2	0	1
17.1099	-76	-56	-105	-75	-1	-2	-14	-10	0	0	-31	-22
17.1100	14	13	4	6	0	0	-3	-2	0	0	1	2
17.1300	30	35	30	31	0	0	8	10	0	1	4	4
17.1400	10	9	36	56	1	1	10	16	0	1	57	94
17.1500	14	14	62	97	2	4	9	18	2	6	107	165
17.1600	16	36	42	73	2	4	13	24	13	20	46	75
17.1700	0	0	1	2	0	0	-2	-2	0	0	0	0
17.1900	-20	-14	4	6	0	0	-1	0	0	0	1	1
17.2000	40	63	50	77	0	0	6	16	0	0	10	15
17.2100	-1	-1	0	0	-1	-1	0	0	0	0	2	3
17.2200	0	0	0	0	0	0	0	0	0	0	0	0
17.2302	58	91	95	146	-13	-9	4	7	0	0	1	1
17.2303	-2	-2	17	26	24	26	12	22	8	13	-12	-9
17.2305	0	0	20	30	14	13	8	20	0	0	-14	-10
17.2306	64	96	105	163	14	13	13	43	0	0	0	0
17.2307	0	0	7	11	11	14	3	6	6	12	0	32
17.2400	-37	-40	14	22	0	0	6	10	1	2	-1	0
17.2600	3	4	0	0	-2	-1	0	0	0	0	45	67
17.2601	0	0	0	0	-1	-1	0	0	0	0	0	0
17.2602	-28	-46	87	136	-1	0	26	34	1	0	0	1
17.2699	-12	-10	0	0	0	0	0	0	0	0	47	184
17.2700	0	0	0	0	0	0	0	0	0	0	1	1
17.2801	1	2	22	34	0	0	0	0	0	0	0	0
17.2802	53	82	57	88	0	0	0	0	0	0	12	2
17.2899	64	100	3	5	0	0	-3	-2	0	0	0	0
17.3000	88	120	12	18	0	0	-5	-3	0	0	10	2
17.3099	-1	-1	7	11	0	0	0	0	0	0	0	0
17.3100	7	12	19	30	3	4	4	12	0	1	9	13
17.3200	12	15	5	8	-1	0	0	0	0	0	35	47
17.3300	2	3	80	124	0	0	-43	47	0	0	0	0
17.3400	5	5	5	7	0	0	0	0	0	0	0	1
17.3500	0	0	33	51	-2	-1	-1	-1	1	2	-1	0
17.2400	17	17	90	140	-2	0	-2	-2	0	0	20	38
17.9900	-31	-21	288	168	58	74	267	238	18	21	308	376

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 15 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	TEXAS		UTAH		VERMONT		VIRGINIA		WASHINGTON		WEST VIRGINIA	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
AGRICULTURE												
01.0000 TOTAL	408	461	27	44	40	48	173	230	106	230	58	98
01.0100	271	472	9	16	9	13	37	60	48	103	48	83
01.0200	38	42	1	2	0	0	7	10	2	11	0	1
01.0300	54	81	9	14	4	6	34	48	37	65	4	6
01.0400	22	24	1	2	1	1	1	1	0	0	0	0
01.0500	19	30	4	7	7	4	23	35	31	51	1	2
01.0600	2	3	1	2	9	9	5	6	2	3	0	2
01.0700	3	4	-3	-2	0	0	4	5	12	19	1	3
01.9900	0	3	4	5	10	14	62	115	63	78	1	3
DISTRIBUTION												
04.0000 TOTAL	846	1485	34	60	17	31	407	682	183	353	52	93
04.0100	6	11	3	5	0	0	3	4	0	1	3	4
04.0200	23	38	1	2	0	0	24	40	14	23	1	2
04.0300	9	14	0	0	0	0	10	17	8	10	0	0
04.0400	48	80	0	0	0	0	8	14	-48	-31	0	0
04.0500	7	13	-10	-7	0	0	6	9	-1	-1	1	1
04.0600	49	81	0	0	0	0	23	39	42	49	2	4
04.0700	43	71	0	0	0	0	27	44	35	38	2	3
04.0800	84	134	21	38	24	27	101	171	-28	-13	2	13
04.0900	1	2	2	3	0	0	6	9	0	0	0	0
04.1000	4	6	0	0	0	0	2	4	1	1	0	0
04.1100	25	42	0	0	0	0	12	20	7	10	0	0
04.1200	151	255	0	0	0	0	5	8	0	0	0	0
04.1300	16	28	0	0	0	0	4	7	2	6	0	0
04.1400	0	1	0	0	-1	-1	2	2	0	0	0	0
04.1500	11	20	0	0	0	0	22	36	-7	-5	0	1
04.1600	8	13	0	0	0	0	3	11	4	8	0	0
04.1700	180	312	1	2	-4	-4	77	132	197	241	4	6
04.1800	4	6	0	0	-1	-1	5	8	8	0	0	0
04.1900	11	18	0	0	0	0	5	8	8	11	2	3
04.2000	3	14	1	1	0	0	3	3	3	4	2	3
04.3100	3	4	0	0	0	0	4	7	0	0	0	0
04.9900	191	314	14	16	0	0	94	90	-21	-5	7	12
HEALTH												
07.0000 TOTAL	705	1105	30	55	4	16	292	423	292	459	0	41
07.0101	12	24	0	0	2	3	9	12	42	49	0	1
07.0102	5	11	0	1	0	0	4	8	5	8	0	0
07.0103	8	13	0	0	0	0	2	4	4	8	1	0
07.0199	0	0	0	0	0	0	0	2	2	0	0	0
07.0203	21	27	1	1	0	0	3	4	2	2	0	1
07.0299	-12	-8	4	8	0	0	13	18	-3	-1	0	0

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	TEXAS		UTAH		VERMONT		VIRGINIA		WASHINGTON		WEST VIRGINIA	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
07.0301	207	195	0	1	0	0	102	146	98	134	-27	-19
07.0302	68	137	3	6	-10	-7	35	60	60	81	4	7
07.0303	71	145	2	5	13	21	15	44	71	92	9	18
07.0305	7	11	0	0	0	0	0	0	8	9	2	0
07.0399	4	7	9	16	0	0	4	4	34	35	5	7
07.0401	2	3	0	0	0	0	0	0	4	5	0	0
07.0402	1	2	0	0	0	0	5	9	3	3	0	0
07.0499	0	2	0	0	0	0	0	0	1	1	0	0
07.0501	13	23	0	0	0	0	3	5	4	7	0	0
07.0503	0	0	0	0	0	0	0	0	1	2	0	0
07.0599	0	0	0	0	0	0	0	0	0	0	0	0
07.0600	1	1	0	0	0	0	0	0	4	5	0	0
07.0700	3	7	0	0	0	0	0	0	-11	-7	0	0
07.0800	16	28	0	0	0	0	6	10	0	0	0	0
07.0903	10	17	0	0	0	0	4	7	2	5	-1	0
07.0904	12	21	0	0	0	0	17	22	-18	1	3	6
07.0906	15	31	-15	-10	-1	-1	23	26	0	0	0	0
07.0907	21	36	0	0	0	0	13	14	8	8	14	18
07.0909	1	2	0	0	0	0	6	6	0	0	0	0
07.9900	219	378	25	29	0	0	15	24	-32	11	0	0
CONSUMER AND HOMEMAKING												
09.0100 TOTAL	803	1372	-275	-197	103	137	328	715	-942	-673	197	352
09.0101	-45	282	-78	-56	103	137	446	675	-345	-246	91	140
09.0102	97	126	-36	-25	0	0	-3	11	-205	-142	3	3
09.0103	55	97	-42	-30	0	0	-24	-3	-132	-94	1	26
09.0104	92	125	-6	-4	0	0	25	27	-15	-11	2	3
09.0106	369	409	-13	-9	0	0	19	20	-69	-49	36	40
09.0107	58	103	-87	-62	0	0	-26	-2	-108	-77	30	45
09.0108	73	91	-7	-5	0	0	-10	-7	-5	-3	2	2
09.0109	78	110	-7	-5	0	0	-5	1	-52	-37	33	64
09.0199	26	28	0	0	0	0	-101	-10	-12	-9	1	11
HOME ECONOMICS: OCCUPATIONAL												
09.0200 TOTAL	406	707	42	94	13	19	109	154	-34	43	27	52
09.0201	148	230	10	21	4	10	22	30	-69	-8	8	9
09.0202	14	45	14	33	1	3	13	22	8	14	2	6
09.0203	56	130	9	18	-1	-1	21	33	8	15	9	17
09.0204	-8	6	7	19	0	1	4	6	-1	-1	3	4
09.0205	25	47	2	4	0	0	1	3	1	1	8	15
09.0299	170	248	0	0	6	7	48	60	18	24	0	2

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	TEXAS		UTAH		VERMONT		VIRGINIA		WASHINGTON		WEST VIRGINIA	
	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981	1979	1981
OFFICE												
14.0000 TOTAL	1204	1858	130	220	74	116	744	1270	472	841	240	444
14.0100	122	174	14	24	17	28	81	137	76	153	43	67
14.0201	22	31	5	9	-1	-1	15	17	-3	-2	5	5
14.0203	92	155	0	0	0	0	14	16	0	0	0	0
14.0299	-14	-10	0	0	0	0	16	41	81	83	-3	-1
14.0300	-19	107	21	35	19	28	67	101	104	160	120	211
14.0400	-22	-9	1	2	1	1	-12	-9	0	0	0	0
14.0500	-1	0	0	0	0	0	2	2	0	0	0	0
14.0600	2	2	0	0	0	0	8	8	31	33	0	0
14.0700	-297	-179	39	66	45	59	127	214	143	307	69	125
14.0800	-110	-76	8	14	0	0	84	140	29	30	0	5
14.0900	69	111	41	70	-11	-8	245	432	-15	-11	12	21
14.9900	1361	1551	0	0	8	8	101	173	24	88	8	8
TECHNICAL												
16.0000 TOTAL	458	775	21	38	0	0	250	410	148	238	10	31
16.0101	2	3	0	0	0	0	2	3	0	0	0	0
16.0103	59	95	0	0	0	0	14	24	0	1	0	0
16.0104	0	0	0	0	0	0	13	20	1	1	0	0
16.0105	2	4	0	0	0	0	0	0	-11	-8	4	4
16.0106	86	145	0	0	0	0	10	17	6	13	5	8
16.0107	54	90	0	0	0	0	1	2	-1	0	0	0
16.0108	-77	-55	0	1	0	0	46	79	26	64	2	4
16.0109	131	148	0	0	0	0	3	4	3	4	0	1
16.0110	0	0	0	0	0	0	3	4	4	5	-1	-1
16.0111	44	74	0	0	0	0	2	4	-2	4	0	1
16.0112	7	11	0	0	0	0	1	1	0	0	0	1
16.0113	7	12	0	0	0	0	12	22	12	14	-2	0
16.0114	-4	-3	0	0	0	0	0	0	0	0	0	0
16.0117	3	5	0	0	0	0	0	0	1	4	0	0
16.0601	12	21	0	0	0	0	0	0	2	3	2	3
16.0602	2	3	0	0	0	0	24	38	-36	-28	1	1
16.0603	0	0	0	0	0	0	3	4	1	1	0	0
16.0604	3	5	0	0	0	0	3	4	7	9	0	0
16.0605	7	13	-41	-30	0	0	84	155	0	0	-1	1
16.9900	120	202	43	69	0	0	18	30	126	142	0	1
16.9901	0	0	0	0	0	0	1	1	0	0	2	2
16.9902	0	0	0	0	0	0	0	0	0	0	0	0
TRADES AND INDUSTRY												
17.0000 TOTAL	2525	4247	201	354	119	164	1302	1940	298	766	277	313
17.0100	126	218	2	4	3	3	49	65	2	3	6	8
17.0200	12	23	0	0	1	1	8	14	2	3	-1	0
17.0301	39	95	3	5	3	4	24	42	11	19	24	33
17.0302	160	377	32	56	19	26	111	169	9	35	12	26

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1991
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	TEXAS		UTAH		VERMONT		VIRGINIA		WASHINGTON		WEST VIRGINIA	
	1979	1991	1979	1991	1979	1991	1979	1991	1979	1991	1979	1991
17.0399	139	233	0	1	-1	-1	12	19	-11	-7	1	2
17.0402	10	19	2	4	3	4	5	6	-8	-4	0	0
17.0500	-5	-1	0	0	2	5	5	7	-4	-2	-4	0
17.0600	-1	-1	0	0	0	1	2	3	3	4	0	0
17.0702	14	34	4	7	3	3	25	37	1	7	2	3
17.0803	-1	0	0	0	1	1	0	0	1	2	0	0
17.0900	1	18	3	4	27	27	4	7	1	3	-1	-1
17.1001	143	169	31	53	-12	-7	64	87	-24	-1	6	10
17.1002	-57	-40	4	9	-1	-1	115	130	2	3	1	1
17.1004	-25	-18	15	17	0	0	70	86	3	5	5	6
17.1007	17	47	-7	-3	2	2	48	64	-21	-15	1	2
17.1099	-481	-343	-7	0	0	0	-15	49	-19	-9	-32	-23
17.1100	0	0	44	47	1	2	-1	0	4	7	5	7
17.1200	14	27	-3	-2	0	0	3	8	7	14	1	2
17.1300	62	78	-41	-29	8	12	70	96	4	12	-1	-2
17.1400	82	101	-10	-7	8	10	23	44	8	12	-12	-14
17.1500	100	200	-30	-22	11	13	72	103	-2	4	-10	-14
17.1600	-1	0	0	0	0	0	3	4	1	1	0	0
17.1700	0	0	23	24	0	0	21	35	159	334	14	23
17.1900	29	57	-15	-11	9	11	25	52	4	10	-2	-3
17.2000	0	0	0	0	0	0	0	0	1	1	0	0
17.2100	9	17	0	0	0	0	1	1	2	3	0	0
17.2200	1	3	22	24	0	0	32	52	14	29	0	1
17.2302	54	89	-15	-11	4	4	81	92	10	29	3	5
17.2303	-2	-1	12	13	0	0	24	30	1	1	0	1
17.2305	-1	4	38	43	0	0	7	8	1	1	0	1
17.2306	134	266	-31	-22	5	7	33	35	23	66	19	37
17.2307	0	0	27	28	0	0	0	0	0	0	1	1
17.2399	-1	61	-18	-13	0	0	3	45	-2	-2	-1	-1
17.2400	0	0	-1	0	0	0	3	4	1	1	0	0
17.2601	0	2	4	4	0	0	3	3	-1	0	0	0
17.2602	64	117	-2	-1	0	0	56	87	3	8	0	0
17.2699	0	0	-2	-1	0	0	9	12	0	0	0	0
17.2700	-5	-3	4	4	0	0	0	0	4	4	0	0
17.2801	576	669	-1	0	4	4	124	150	-20	10	-33	4
17.2802	222	374	-1	-1	0	0	33	38	46	68	11	19
17.2899	32	57	3	3	0	0	19	28	-1	0	11	19
17.2900	-15	2	-2	-1	11	15	3	18	31	37	14	19
17.3000	0	0	-2	-2	0	0	2	4	0	0	0	0
17.3100	9	19	8	11	4	7	29	46	5	7	11	15
17.3200	0	1	0	0	0	0	3	5	2	2	2	3
17.3300	-24	4	-5	-2	0	0	12	17	4	6	2	3
17.3400	0	2	9	9	0	0	-1	-1	0	0	0	0
17.3500	30	56	-3	-2	1	1	2	4	3	4	2	3
17.3600	0	5	-6	-4	5	7	41	47	4	6	-1	-1
17.9900	1058	1197	15	17	-1	0	102	147	43	33	311	186

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	WISCONSIN 1979	WISCONSIN 1981	WYOMING 1979	WYOMING 1981	WASHINGTON, DC 1979	WASHINGTON, DC 1981
AGRICULTURE						
01.0000 TOTAL	-132	-2	-1	15	2	2
01.0100	-13	49	4	19	0	0
01.0200	-9	-4	-1	-1	0	0
01.0300	-91	-13	-3	-2	0	0
01.0400	-15	-8	0	0	0	0
01.0500	2	8	0	0	2	2
01.0600	-13	-4	0	0	0	0
01.0700	-18	-14	0	0	0	0
01.9900	-45	-25	0	0	0	0
DISTRIBUTION						
04.0000 TOTAL	82	186	10	25	3	4
04.0100	-2	0	4	4	0	0
04.0200	-1	9	-1	0	0	0
04.0300	-1	0	0	0	0	0
04.0400	16	22	2	4	0	0
04.0500	0	1	0	0	0	0
04.0600	-1	1	0	0	0	0
04.0700	14	-3	-2	-2	0	0
04.0800	43	93	-4	-1	-3	-2
04.0900	-1	0	0	0	0	0
04.1000	-1	0	0	0	0	0
04.1100	2	3	-1	0	0	0
04.1200	5	9	0	0	0	0
04.1300	4	4	0	0	0	0
04.1400	0	0	0	0	0	0
04.1500	-2	-1	0	0	0	0
04.1600	-11	0	-1	0	0	0
04.1700	28	42	0	0	0	0
04.1800	0	1	-1	-1	0	0
04.1900	0	2	0	0	0	0
04.2000	0	0	0	0	0	0
04.3100	0	0	0	0	0	0
04.9900	-1	0	3	3	6	6
HEALTH						
07.0000 TOTAL	297	444	-8	1	17	19
07.0101	-7	-4	-1	-1	-1	0
07.0102	-4	-3	-2	-2	0	0
07.0103	-1	-1	0	0	2	2
07.0199	0	0	0	0	0	0
07.0203	-4	-1	0	0	0	0
07.0299	10	10	0	0	0	0

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1976 AND 1981
ASSUMING MEDIUM (1991) ANNUAL TURNOVER RATE

PROGRAM CODES	WISCONSIN 1976	WISCONSIN 1981	WYOMING 1976	WYOMING 1981	WASHINGTON, DC 1976	WASHINGTON, DC 1981
07.0301	-28	-20	-5	-4	-	-
07.0302	-43	-45	-4	-4	-1	-1
07.0303	-36	-36	-4	-3	1	1
07.0305	-7	-5	0	0	0	0
07.0399	78	102	10	10	-5	-4
07.0401	-2	0	0	0	0	0
07.0402	-1	-1	0	0	0	0
07.0499	0	0	0	0	0	0
07.0501	-3	0	0	0	0	0
07.0503	0	0	0	0	0	0
07.0599	0	0	0	0	0	0
07.0600	1	1	0	0	0	0
07.0700	1	1	0	0	0	0
07.0803	0	0	0	0	0	0
07.0903	-1	0	0	0	0	0
07.0904	-7	0	0	0	0	0
07.0906	-1	0	0	0	0	0
07.0907	33	28	0	0	0	0
07.0909	0	0	0	0	0	0
07.9900	315	357	5	5	19	19
CONSUMER AND HOMEMAKING						
09.0100 TOTAL	36	316	-88	-69	-11	4
09.0101	-14	-12	-30	-21	6	9
09.0102	-24	-13	-2	-2	1	2
09.0103	82	136	-18	-8	-6	-3
09.0104	25	76	-23	-16	-1	-1
09.0106	-31	-19	-6	-4	-1	-1
09.0107	60	159	-6	-4	-1	0
09.0108	0	0	-3	-2	0	0
09.0109	23	45	-1	-1	0	0
09.0199	-64	-45	-4	-3	-9	-1
HOME ECONOMICS: OCCUPATIONAL						
09.0200 TOTAL	-20	67	-3	1	14	20
09.0201	18	31	0	0	6	6
09.0202	0	8	-6	-4	9	11
09.0203	-31	16	-3	-2	4	4
09.0204	6	12	0	0	1	1
09.0205	1	6	0	0	0	0
09.0299	-16	-1	6	6	-9	-9

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	WISCONSIN 1979	WISCONSIN 1981	WYOMING 1979	WYOMING 1981	WASHINGTON, DC 1979	WASHINGTON, DC 1981
OFFICE						
14.0000 TOTAL	-219	162	-127	-80	116	125
14.0100	47	109	-22	-14	29	30
14.0201	-29	-19	0	0	0	0
14.0203	-30	-21	0	0	-1	-1
14.0299	2	4	-4	-4	0	0
14.0300	-159	-97	-12	-7	86	96
14.0400	8	11	3	2	0	0
14.0500	0	0	0	0	0	0
14.0600	20	21	0	0	0	0
14.0700	-76	46	-28	-19	13	15
14.0800	60	99	-2	-1	0	0
14.0900	-28	-7	-45	-30	9	10
14.9900	-33	6	-11	-8	12	13
TECHNICAL						
16.0000 TOTAL	239	356	-16	0	1	0
16.0101	0	0	0	0	0	0
16.0103	-16	-11	0	0	0	0
16.0104	-15	-10	0	0	0	0
16.0105	-2	-1	-2	-1	0	0
16.0106	-14	-9	1	1	0	0
16.0107	-4	-3	0	0	0	0
16.0109	-60	-42	-4	-3	0	0
16.0110	-1	-1	0	0	0	0
16.0111	-8	-6	-3	-2	0	0
16.0112	-25	-18	0	0	0	0
16.0113	-6	-4	0	0	0	0
16.0115	-42	-33	0	0	0	0
16.0116	-2	-1	-3	-2	0	0
16.0117	0	0	0	0	0	0
16.0601	-3	-2	0	0	0	0
16.0602	-36	-26	0	0	0	0
16.0603	0	0	0	0	0	0
16.0604	0	0	0	0	0	0
16.2405	-116	-93	-5	-4	0	0
16.9900	584	604	2	2	0	0
16.9901	0	0	0	0	0	0
16.9902	-1	-1	0	0	0	0
TRADES AND INDUSTRY						
17.0000 TOTAL	235	1109	-44	-21	353	367
17.0100	9	12	2	2	1	1
17.0200	-6	0	0	0	0	0
17.0301	-42	-30	-1	-1	-1	-1
17.0302	-171	-122	-13	-8	-1	-1

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 19 (continued)

ESTIMATED NUMBER OF TEACHERS NEEDED* BY STATE AND VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEARS 1979 AND 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE

PROGRAM CODES	WISCONSIN		WYOMING		WASHINGTON, DC	
	1979	1981	1979	1981	1979	1981
17.0399	21	69	0	0	0	0
17.0400	9	19	0	0	0	0
17.0500	0	0	0	0	0	0
17.0600	1	1	0	0	0	0
17.0700	5	9	-1	-1	0	0
17.0800	0	0	0	0	0	0
17.0900	-10	-7	0	0	-1	0
17.1001	-49	-30	-6	-4	0	0
17.1002	-37	-9	-4	-3	0	0
17.1004	0	6	1	1	0	1
17.1007	2	7	0	0	0	0
17.1099	-48	-34	-5	-4	0	0
17.1100	4	11	0	0	0	0
17.1200	12	17	0	0	0	0
17.1300	-7	30	-4	-3	-1	0
17.1400	-11	0	-1	0	0	0
17.1500	61	77	-2	-1	-1	-1
17.1600	-20	-20	0	0	0	0
17.1700	16	25	0	0	0	0
17.1900	-35	1	-3	-2	-1	0
17.2000	0	0	0	0	0	0
17.2100	1	2	0	0	0	0
17.2200	136	1	0	0	0	0
17.2302	-60	154	-2	-1	0	0
17.2303	-32	-23	-2	-1	0	0
17.2305	3	6	0	0	0	0
17.2306	38	97	-2	-1	0	0
17.2307	0	1	0	0	0	0
17.2399	-7	-5	0	0	0	0
17.2400	2	4	0	0	0	0
17.2601	-2	12	0	0	0	0
17.2602	34	65	0	0	0	0
17.2699	0	0	0	0	0	0
17.2700	-5	-3	-1	-1	0	0
17.2801	98	170	-3	-2	0	0
17.2802	59	108	0	0	0	0
17.2899	14	23	0	0	0	0
17.2900	24	34	0	0	0	0
17.3000	2	3	0	0	0	0
17.3100	-17	30	-2	-1	0	0
17.3200	6	9	0	0	0	0
17.3300	1	1	0	0	0	0
17.3400	1	1	0	0	0	0
17.3500	1	1	0	0	0	0
17.3600	-27	-4	-2	-2	0	0
17.9900	204	339	5	7	350	359

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 20

Highest Ranking 20 Percent of Vocational Education Programs by Estimated Number of Teachers Needed in Fiscal Years 1979 and 1981 Assuming Medium (10 Percent) Annual Turnover Rate for _____ (State)

Table 20 Explained

Table 20 is a rank ordering of the highest ranking 20 percent of all programs in each state by the estimated number of teachers needed for fiscal year 1979. The program ranked first is the program with the greatest need. The programs in greatest need of teachers in each state are shown in Table 20 which consists of a single page for each state.

The 20 percent ranked programs exhibiting the greatest need for teachers cumulatively possess a disproportionate share of total teacher needs. The percentage of the total held by the top 20 percent programs varies from state to state. In Alabama, the top 20 percent accounts for 83 percent of the total teacher needs in the state.

Persons expecting to use state level data should recheck the data from this report with the state division of vocational education regarding any changes in programs which would increase or decrease the estimated needs for teachers. Further, if a state has actual turnover rates for teachers, the rates for that state should be used in determining the number of teachers needed for a future year.

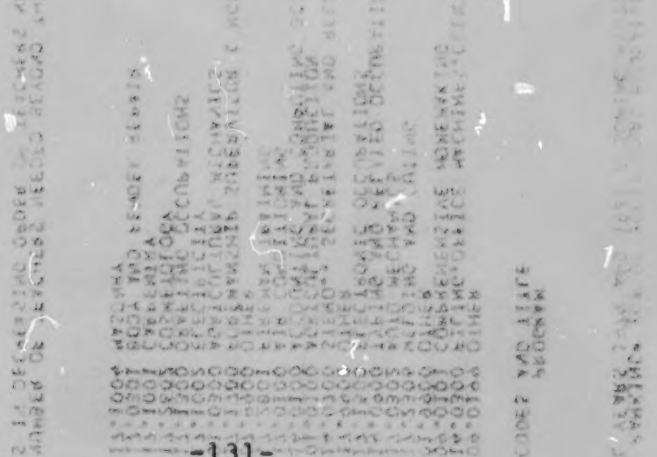

TABLE 20

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

ALABAMA

PROGRAM CODES AND TITLE	1979	1981
09.0199 OTHER	152	256
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	107	186
09.0101 COMPREHENSIVE HOMEMAKING	91	147
01.9900 OTHER	82	136
17.2306 WELDING AND CUTING	56	88
17.0302 AUTO MECHANICS	52	89
14.0900 TYPING AND RELATED OCCUPATIONS	49	84
17.1500 ELECTRONIC OCCUPATIONS	48	81
17.9900 OTHER	48	65
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	44	75
01.0100 AGRICULTURAL PRODUCTION	40	73
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	40	72
17.0100 AIR CONDITIONING	35	59
17.2801 FIREMAN TRAINING	32	38
07.9900 OTHER	31	41
17.1700 FOREMANSHIP SUPERVISOR & MGMT. DEV.	31	57
01.0300 AGRICULTURAL MECHANICS	29	61
17.1002 ELECTRICITY	29	46
17.1300 DRAFTING OCCUPATIONS	26	45
17.2602 COSMETOLOGY	24	43
17.1001 CARPENTRY	23	40
17.0301 BODY AND FENDER REPAIR	22	43
17.1004 MASONRY	22	40

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	ALASKA 1979	ALASKA 1981
14.0900 TYPING AND RELATED OCCUPATIONS	48	99
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	44	90
09.0103 CLOTHING AND TEXTILES	31	56
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	24	48
09.0107 FOOD AND NUTRITION	23	42
09.0101 COMPREHENSIVE HOMEMAKING	18	32
17.3600 WOODWORKING OCCUPATIONS	17	34
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	16	32
17.0302 AUTO MECHANICS	15	32
16.0101 AERONAUTICAL TECHNOLOGY	14	28
17.1300 DRAFTING OCCUPATIONS	13	26
17.2399 OTHER METALWORKING OCCUPATIONS	12	24
16.0602 FIRE AND FIRE SAFETY TECHNOLOGY	10	20
17.3100 SMALL ENGINE REPAIR	10	21

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**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	ARIZONA 1979	ARIZONA 1981
04.1700 REAL ESTATE	159	234
04.0800 GENERAL MERCHANDISE	147	205
04.0400 FINANCE AND CREDIT	61	104
04.2000 RETAIL TRADE, OTHER	57	73
17.0302 AUTO MECHANICS	48	80
04.0100 ADVERTISING SERVICES	46	69
17.2802 LAW ENFORCEMENT TRAINING	43	50
17.0399 OTHER AUTOMOTIVE	41	72
17.9900 OTHER	40	72
17.2306 WELDING AND CUTING	32	54
16.0108 ELECTRONIC TECHNOLOGY	29	49
14.9900 OTHER	27	34
09.0203 FOOD MGMT., PRODUCTION & SERVICES	25	46
01.9900 OTHER	22	39
17.1099 OTHER CONSTRUCTION & MAINT. TRADES	22	36
17.2801 FIREMAN TRAINING	22	30
04.1300 INSURANCE	20	26
09.0299 OTHER	20	35
14.0201 COMPUTER AND CONSOLE OPERATORS	20	31
01.0100 AGRICULTURAL PRODUCTION	19	33
07.0301 NURSING (ASSOCIATE DEGREE)	18	24
17.2899 OTHER PUBLIC SERVICES	17	30
17.3300 TEXTILE PRODUCTION AND FABRICATION	17	38
14.0400 INFORMATION COMMUNICATION OCCUPATIONS	16	23
17.1400 ELECTRICAL OCCUPATIONS	16	27
14.0500 MATERIALS SUPPORT, TRANSPORTATION, ETC.	14	15

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	ARKANSAS 1979	ARKANSAS 1981
01.0300 AGRICULTURAL MECHANICS	50	101
01.0100 AGRICULTURAL PRODUCTION	41	83
09.0101 COMPREHENSIVE HOMEMAKING	40	122
17.2801 FIREMAN TRAINING	28	55
17.9900 OTHER	27	53
14.0900 TYPING AND RELATED OCCUPATIONS	22	52
17.0302 AUTO MECHANICS	18	36
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	16	36
17.2802 LAW ENFORCEMENT TRAINING	16	32
07.0399 OTHER NURSING	15	29
04.0800 GENERAL MERCHANDISE	14	26
07.0303 NURSING ASSISTANT (AIDE)	14	29
07.0907 MEDICAL EMERGENCY TECHNICIAN	14	27
09.0203 FOOD MGMT., PRODUCTION & SERVICES	14	24
07.0302 PRACTICAL (VOCATIONAL) NURSING	13	27
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	13	30
07.0301 NURSING (ASSOCIATE DEGREE)	12	24
17.2306 WELDING AND CUTING	12	24
01.0200 AGRICULTURAL SUPPLIES/SERVICES	11	23
14.9900 OTHER	11	26
17.1001 CARPENTRY	11	21
07.9900 OTHER	10	21
09.0107 FOOD AND NUTRITION	7	22
14.0300 FILING, OFFICE MACHINES, CLERICAL OCCUP.	7	16
04.0700 FOOD SERVICES	6	12
01.0400 AGRICULTURAL PRODUCTS	5	10
01.0600 AGRICULTURAL RESOURCES	5	10
01.0700 FORESTRY	5	10

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

CALIFORNIA

PROGRAM CODES AND TITLE		1979	1981
14.0300	FILING,OFFICE MACHINES,CLERICAL OCCUP.	889	1552
09.0199	OTHER	812	1047
14.0900	TYPING AND RELATED OCCUPATIONS	710	1080
14.0700	STENO., SECRETARIAL AND RELATED OCCUP.	666	1099
14.0800	SUPERVISORY AND ADMIN. MGMT. OCCUP.	634	659
17.2306	WELDING AND CUTING	313	534
14.0100	ACCOUNTING AND COMPUTING OCCUPATIONS	405	753
09.0103	CLOTHING AND TEXTILES	379	455
04.0800	GENERAL MERCHANDISE	372	584
04.1700	REAL ESTATE	359	610
17.2802	LAW ENFORCEMENT TRAINING	312	487
09.0107	FOOD AND NUTRITION	307	372
09.0201	CARE AND GUIDANCE OF CHILDREN	297	515
17.0302	AUTO MECHANICS	292	513
01.0100	AGRICULTURAL PRODUCTION	290	445
17.2302	MACHINE SHOP	271	282
17.1300	DRAFTING OCCUPATIONS	270	386
16.0603	POLICE SCIENCE	263	449
16.0108	ELECTRONIC TECHNOLOGY	257	358
17.2899	OTHER PUBLIC SERVICES	232	291
16.9701	AIR POLLUTION TECHNOLOGY	216	224
17.0399	OTHER AUTOMOTIVE	206	341
17.1500	ELECTRONIC OCCUPATIONS	192	325
07.0907	MEDICAL EMERGENCY TECHNICIAN	183	191
01.0500	ORNAMENTAL HORTICULTURE	158	281
14.1700	FOREMANSHIP SUPERVISOR & MGMT. DEV.	156	282
17.1900	GRAPHIC ARTS OCCUPATIONS	147	260
17.3600	WOODWORKING OCCUPATIONS	139	206
04.0400	FINANCE AND CREDIT	137	187
17.0900	COMMERCIAL PHOTOGRAPHY OCCUPATIONS	137	200

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

COLORADO

PROGRAM CODES AND TITLE	1979	1981
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	95	170
04.9900 OTHER	86	102
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	63	77
09.0101 COMPREHENSIVE HOMEMAKING	33	121
01.0100 AGRICULTURAL PRODUCTION	32	59
17.1300 DRAFTING OCCUPATIONS	30	28
17.1400 ELECTRICAL OCCUPATIONS	30	33
17.0302 AUTO MECHANICS	26	46
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	25	63
09.0299 OTHER	16	26
17.9900 OTHER	14	45
14.9900 OTHER	11	17
16.0605 POLICE SCIENCE	10	18
07.0301 NURSING (ASSOCIATE DEGREE)	8	13
16.0602 FIRE AND FIRE SAFETY TECHNOLOGY	8	18
14.0203 PROGRAMMERS	7	7
17.0301 BODY AND FENDER REPAIR	7	7
17.1900 GRAPHIC ARTS OCCUPATIONS	7	13
17.2306 WELDING AND CUTING	7	24
17.2302 MACHINE SHOP	6	11
17.3100 SMALL ENGINE REPAIR	6	12
07.0501 RADIOLOGIC TECHNOLOGY	5	8
17.2602 COSMETOLOGY	5	10
17.0900 COMMERCIAL PHOTOGRAPHY OCCUPATIONS	4	9
17.1001 CARPENTRY	4	12

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

CONNECTICUT

PROGRAM CODES AND TITLE	1979	1981
09.0101 COMPREHENSIVE HOMEMAKING	953	1717
14.9900 OTHER	882	1187
17.2302 MACHINE SHOP	244	267
04.9900 OTHER	90	160
17.3500 TEXTILE PRODUCTION AND FABRICATION	78	95
09.0203 FOOD MGMT., PRODUCTION & SERVICES	70	91
01.9900 OTHER	42	53
17.2303 MACHINE TOOL OPERATION	21	33
17.0399 OTHER AUTOMOTIVE	20	30
09.0201 CARE AND GUIDANCE OF CHILDREN	14	41
07.9900 OTHER	13	17
14.0299 OTHER BUSINESS DATA PROCESSING	13	16
17.0200 APPLIANCE REPAIR	13	24
17.0301 BODY AND FENDER REPAIR	7	5
17.1900 GRAPHIC ARTS OCCUPATIONS	7	13

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 30% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

DELAWARE

PROGRAM CODES AND TITLE	1979	1981
17.2801 FIREMAN TRAINING	358	352
14.0300 FILING, OFFICE MACHINES, CLERICAL OCCUP.	35	38
09.0104 CONSUMER EDUCATION	28	23
04.2000 RETAIL TRADE, OTHER	22	19
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	22	29
17.3600 WOODWORKING OCCUPATIONS	20	26
09.0102 CHILD DEVELOPMENT	15	13
17.1002 ELECTRICITY	14	14
07.0301 NURSING (ASSOCIATE DEGREE)	11	11
16.0101 AERONAUTICAL TECHNOLOGY	11	10
16.0108 ELECTRONIC TECHNOLOGY	11	12
17.1303 DRAFTING OCCUPATIONS	11	14
07.0302 PRACTICAL (VOCATIONAL) NURSING	10	11
09.0108 HOME MANAGEMENT	10	10
09.0204 HOME FURNISHING, EQUIPMENT & SERVICES	10	10
16.9900 OTHER	10	5
09.0201 CARE AND GUIDANCE OF CHILDREN	9	17
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	9	15
16.0110 ENVIRONMENTAL CONTROL TECHNOLOGY	9	10
17.0200 APPLIANCE REPAIR	9	9
17.2399 OTHER METALWORKING OCCUPATIONS	9	13
09.0101 COMPREHENSIVE HOMEMAKING	8	8
09.0107 FOOD AND NUTRITION	8	9
16.0111 INDUSTRIAL TECHNOLOGY	8	9
14.0203 PROGRAMMERS	7	7
17.0302 AUTO MECHANICS	7	4

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	FLORIDA 1979	FLORIDA 1981
04.0800 GENERAL MERCHANDISE	13	130
04.0400 FINANCE AND CREDIT	7	71
04.9900 OTHER	7	72
04.1700 REAL ESTATE	6	63
04.1100 HOTEL AND LODGING	4	42
04.1500 PERSONAL SERVICES	3	32
04.1800 RECREATION AND TOURISM	3	30
04.0500 FLORISTRY	2	18
04.1300 INSURANCE	2	20
04.0100 ADVERTISING SERVICES	1	9
04.0200 APPAREL AND ACCESSORIES	1	13
04.0700 FOOD SERVICES	1	9

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	GEORGIA 1979	GEORGIA 1981
17.0399 OTHER AUTOMOTIVE	211	266
17.1001 CARPENTRY	160	-27
17.2399 OTHER METALWORKING OCCUPATIONS	152	206
17.1400 ELECTRICAL OCCUPATIONS	111	145
09.0101 COMPREHENSIVE HOMEMAKING	96	236
17.3300 TEXTILE PRODUCTION AND FABRICATION	82	92
01.9900 OTHER	55	55
14.0299 OTHER BUSINESS DATA PROCESSING	53	75
07.9900 OTHER	48	76
04.0800 GENERAL MERCHANDISE	36	48
12.2602 COSMETOLOGY	32	42
17.1900 GRAPHIC ARTS OCCUPATIONS	29	51
09.0199 OTHER	27	35
17.1300 DRAFTING OCCUPATIONS	25	54
17.1500 ELECTRONIC OCCUPATIONS	21	47
04.0700 FOOD SERVICES	16	23
17.3000 REFRIGERATION	11	14
04.2000 RETAIL TRADE, OTHER	8	18
17.9900 OTHER	8	266
17.0700 COMMERCIAL ART OCCUPATION	7	8
07.0302 PRACTICAL (VOCATIONAL) NURSING	5	-30
04.9900 OTHER	4	4
17.0600 BUSINESS MACHINE MAINTENANCE	4	19
01.0600 AGRICULTURAL RESOURCES	3	8
07.0101 DENTAL ASSISTANT	3	5
04.1600 PETROLEUM	2	2
04.1800 RECREATION AND TOURISM	2	5

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	HAWAII 1979	HAWAII 1981
17.0399 OTHER AUTOMOTIVE	90	102
17.9900 OTHER	66	74
13.0800 GENERAL MERCHANDISE	65	88
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	50	81
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	31	46
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	28	42
09.0101 COMPREHENSIVE HOMEMAKING	25	37
16.0106 ELECTRONIC TECHNOLOGY	24	34
01.0500 ORNAMENTAL HORTICULTURE	20	28
09.0107 FOOD AND NUTRITION	16	23
14.0900 TYPING AND RELATED OCCUPATIONS	15	23
17.1900 GRAPHIC ARTS OCCUPATIONS	15	19
01.0100 AGRICULTURAL PRODUCTION	14	20
09.0103 CLOTHING AND TEXTILES	14	20
17.2399 OTHER METALWORKING OCCUPATIONS	13	19

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

IDAHO

PROGRAM CODES AND TITLE	1979	1981
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	93	119
17.9900 OTHER	46	59
04.0800 GENERAL MERCHANDISE	35	42
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	35	54
01.0100 AGRICULTURAL PRODUCTION	32	59
04.9900 OTHER	29	36
17.2306 WELDING AND CUTING	22	38
07.9900 OTHER	21	29
17.2399 OTHER METALWORKING OCCUPATIONS	19	23
09.0101 COMPREHENSIVE HOMEMAKING	18	41
07.0303 NURSING ASSISTANT (AIDE)	16	16
17.0302 AUTO MECHANICS	14	20
09.0103 CLOTHING AND TEXTILES	8	17
01.0300 AGRICULTURAL MECHANICS	7	10
04.0107 FOOD AND NUTRITION	7	16
09.0108 HOME MANAGEMENT	7	16
14.0299 OTHER BUSINESS DATA PROCESSING	6	7
14.0108 ELECTRONIC TECHNOLOGY	6	12
17.2302 MACHINE SHOP	6	6
17.1500 ELECTRONIC OCCUPATIONS	5	12
09.0102 CHILD DEVELOPMENT	4	8
09.0109 HOUSING AND HOME FURNISHINGS	4	8

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	ILLINOIS 1979	ILLINOIS 1981
1.0000 TOTAL - AGRICULTURE	507	0
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	391	626
14.0900 TYPING AND RELATED OCCUPATIONS	326	402
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	352	563
04.0800 GENERAL MERCHANDISE	317	516
47.0302 AUTO MECHANICS	217	346
17.1300 DRAFTING OCCUPATIONS	216	344
17.3600 WOODWORKING OCCUPATIONS	170	271
07.0301 NURSING (ASSOCIATE DEGREE)	160	275
09.0203 FOOD MGMT., PRODUCTION & SERVICES	145	227
01.0100 AGRICULTURAL PRODUCTION	142	225
14.0300 PTG.&OFFICE MACHINES,CLERICAL OCCUP.	138	221
17.1001 CARPENTRY	123	196
09.0201 CARE AND GUIDANCE OF CHILDREN	107	167
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	105	165
17.1900 GRAPHIC ARTS OCCUPATIONS	101	160
17.2302 MACHINE SHOP	98	155
14.0203 PROGRAMMERS	95	152
46.0108 ELECTRONIC TECHNOLOGY	94	147
07.0303 NURSING ASSISTANT (AIDE)	91	156
04.1700 REAL ESTATE	76	123
17.2306 WELDING AND CUTING	76	121
07.0302 PRACTICAL (VOCATIONAL) NURSING	74	127
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	69	110
01.0300 AGRICULTURAL MECHANICS	68	108
17.1500 ELECTRONIC OCCUPATIONS	66	105
46.0111 INDUSTRIAL TECHNOLOGY	61	108
07.0906 HEALTH AIDE	58	100

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

INDIANA

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	990	1106
07.9900 OTHER	371	592
04.0100 ADVERTISING SERVICES	334	373
14.9900 OTHER	218	246
07.0301 NURSING (ASSOCIATE DEGREE)	191	214
07.0302 PRACTICAL (VOCATIONAL) NURSING	174	209
09.0104 CONSUMER EDUCATION	84	131
04.0107 FOOD AND NUTRITION	82	128
01.0100 AGRICULTURAL PRODUCTION	81	134
09.0103 CLOTHING AND TEXTILES	78	121
04.9900 OTHER	74	77
14.0206 OTHER BUSINESS DATA PROCESSING	71	83
16.9901 AIR POLLUTION TECHNOLOGY	56	56
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	54	83
04.0300 AUTOMOTIVE	52	75
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	43	60
09.0203 FOOD MGMT., PRODUCTION & SERVICES	41	63
04.0800 GENERAL MERCHANDISE	37	35
07.0501 RADIOLOGIC TECHNOLOGY	37	20
17.1500 ELECTRONIC OCCUPATIONS	36	50
01.0300 AGRICULTURAL MECHANICS	35	58
09.0106 FAMILY RELATIONS	35	54
04.0600 FOOD DISTRIBUTION	33	52
17.1400 ELECTRICAL OCCUPATIONS	28	46
09.0102 CHILD DEVELOPMENT	24	41
04.0700 FOOD SERVICES	24	37
09.0109 HOUSING AND HOME FURNISHINGS	23	35
17.0100 AIR CONDITIONING	22	31

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	IOWA 1979	IOWA 1981
17.9900 OTHER	907	1011
07.9900 OTHER	794	924
09.0299 OTHER	775	833
14.9900 OTHER	541	588
01.9900 OTHER	312	326
16.9901 AIR POLLUTION TECHNOLOGY	136	159
04.9900 OTHER	97	122
09.0199 OTHER	88	147
09.0104 CONSUMER EDUCATION	77	129
09.0101 COMPREHENSIVE HOMEMAKING	50	83
09.0107 FOOD AND NUTRITION	42	71
16.0108 ELECTRONIC TECHNOLOGY	31	49
09.0103 CLOTHING AND TEXTILES	30	50
09.0203 FOOD MGMT., PRODUCTION & SERVICES	28	61
09.0106 FAMILY RELATIONS	27	44
09.0201 CARE AND GUIDANCE OF CHILDREN	25	66
04.0600 FOOD DISTRIBUTION	24	34
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	22	41
09.0102 CHILD DEVELOPMENT	17	28
04.0300 APPAREL AND ACCESSORIES	16	32
09.0109 HOUSING AND HOME FURNISHINGS	15	26
16.0103 ARCHITECTUAL TECHNOLOGY	15	15
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	14	35
16.0605 POLICE SCIENCE	14	22
14.0201 COMPUTER AND CONSOLE OPERATORS	13	16

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	KANSAS 1979	KANSAS 1981
01.0100 AGRICULTURAL PRODUCTION	127	155
09.0101 COMPREHENSIVE HOMEMAKING	78	130
17.9900 OTHER	58	66
09.0107 FOOD AND NUTRITION	41	69
17.2306 WELDING AND CUTING	39	77
07.0302 PRACTICAL (VOCATIONAL) NURSING	32	31
09.0103 CLOTHING AND TEXTILES	32	53
17.1100 CUSTODIAL SERVICE	32	39
17.2302 MACHINE SHOP	28	56
07.0303 NURSING ASSISTANT (AIDE)	25	47
09.0104 FAMILY RELATIONS	22	32
17.1602 ELECTRICITY	22	27
17.1001 CARPENTRY	19	29
09.0102 CHILD DEVELOPMENT	14	24
16.0101 AERONAUTICAL TECHNOLOGY	14	11
17.0501 BODY AND FENDER REPAIR	14	27
17.2802 LAW ENFORCEMENT TRAINING	14	13
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	12	65
17.3400 WOODWORKING OCCUPATIONS	12	16
09.0109 HOUSING AND HOME FURNISHINGS	10	17
09.0299 OTHER	10	14
17.0100 AIR CONDITIONING	10	19
17.1300 DRAFTING OCCUPATIONS	10	19
04.0700 FOOD SERVICES	8	23
16.0605 POLICE SCIENCE	8	10

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR KENTUCKY

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	1516	2438
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	157	260
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	93	158
07.4900 OTHER	80	86
17.0302 AUTO MECHANICS	65	108
01.9900 OTHER	63	99
04.9900 OTHER	52	93
17.2306 WELDING AND CUTING	52	83
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	58	70
17.1001 CARPENTRY	47	74
01.0100 AGRICULTURAL PRODUCTION	34	57
07.0407 MEDICAL EMERGENCY TECHNICIAN	31	31
17.1[illegible] ELECTRICAL OCCUPATIONS	26	56
17.2302 MACHINE SHOP	25	45
07.0[illegible] OTHER NURSING	22	35
07.0302 PRACTICAL (VOCATIONAL) NURSING	21	38
07.0301 NURSING (ASSOCIATE DEGREE)	20	46
17.1002 ELECTRICITY	20	38
17.0301 BODY AND FENDER REPAIR	17	29
17.1300 DRAFTING OCCUPATIONS	17	28
09.0201 CARE AND GUIDANCE OF CHILDREN	16	26
04.2000 RETAIL TRADE, OTHER	15	38

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	LOUISANA 1979	LOUISANA 1981
09.0101 COMPREHENSIVE HOMEMAKING	562	564
14.0900 TYPING AND RELATED OCCUPATIONS	128	196
17.9900 OTHER	106	118
17.2306 WELDING AND CUTING	90	144
14.0300 FILING, OFFICE MACHINES, CLERICAL OCCUP.	84	130
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	79	121
01.0400 AGRICULTURAL PRODUCTION	71	110
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	69	105
17.0302 AUTO MECHANICS	61	96
14.9900 OTHER	56	58
07.0302 PRACTICAL (VOCATIONAL) NURSING	52	80
17.1300 DRAFTING OCCUPATIONS	51	44
17.1001 CARPENTRY	32	49
01.0300 AGRICULTURAL MECHANICS	25	42
07.0303 NURSING ASSISTANT (AIDE)	22	34
09.0703 FOOD MGMT., PRODUCTION & SERVICES	22	36
17.0100 AIR CONDITIONING	22	35
17.1700 FOREMANSHIP SUPERVISOR & MGMT. DEV.	21	32
14.0400 INFORMATION COMMUNICATION OCCUPATIONS	17	27
17.2302 MACHINE SHOP	15	23
07.9900 OTHER	13	15
16.0108 ELECTRONIC TECHNOLOGY	11	17

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

MAINE

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	258	344
07.9900 OTHER	111	136
14.9900 OTHER	101	124
01.9900 OTHER	13	15
04.0100 ADVERTISING SERVICES	10	11
01.0700 FORESTRY	7	9
03.9900 OTHER	5	8
04.0199 OTHER	5	8
17.2302 MACHINE SHOP	5	8
07.0199 OTHER DENTAL	4	8
14.0299 OTHER BUSINESS DATA PROCESSING	4	8
15.0104 ELECTRONIC TECHNOLOGY	4	8
07.9904 HEALTH AIDE	3	6
17.2900 QUANTITY FOOD OCCUPATIONS	3	6
01.0600 AGRICULTURAL RESOURCES	2	5
07.0101 DENTAL ASSISTANT	2	5
07.0102 DENTAL HYGIENIST (ASSOCIATE DEGREE)	2	5
09.0201 CARE AND GUIDANCE OF CHILDREN	2	5
01.0401 FORESTRY TECHNOLOGY	1	4
07.0303 PHARMACY TECHNOLOGY	1	4
07.0302 PRACTICAL (VOCATIONAL) NURSING	1	4
07.0903 INHALATION THERAPY TECHNOLOGY	1	4
09.0203 FOOD MGMT., PRODUCTION & SERVICES	1	4
14.0201 PROGRAMMER	1	4
15.0104 ELECTROMECHANICAL TECHNOLOGY	1	3
15.0404 OCEANOGRAPHIC TECHNOLOGY	1	3
17.0301 BODY AND FENDER REPAIR	1	3

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	MARYLAND 1979	MARYLAND 1981
14.9900 OTHER	1566	1601
17.9900 OTHER	216	235
07.0303 SURGICAL TECHNOLOGY	148	181
17.2801 LAW ENFORCEMENT TRAINING	108	114
16.0113 MECHANICAL TECHNOLOGY	86	95
01.9900 OTHER	64	72
16.0108 ELECTRONIC TECHNOLOGY	45	70
04.0800 GENERAL MERCHANDISE	42	81
09.0201 CARE AND GUIDANCE OF CHILDREN	39	40
09.0205 INSTITUTIONAL & HOME MGMT. & SERVICES	32	41
17.2801 FIREMAN TRAINING	30	35
17.1001 ELECTRICITY	27	28
17.0302 AUTO MECHANICS	51	51
04.1800 RECREATION AND TOURISM	51	24
17.1500 ELECTRONIC OCCUPATIONS	16	29
17.4101 COSMETOLOGY	16	27
01.0100 AGRICULTURAL PRODUCTION	15	30
04.0200 APPAREL AND ACCESSORIES	12	18
07.0302 PRACTICAL (VOCATIONAL) NURSING	9	18
17.0501 BODY AND FENDER REPAIR	9	17
04.9900 OTHER	7	15
07.0101 DENTAL ASSISTANT	7	15
07.0903 INHALATION THERAPY TECHNOLOGY	7	9
17.1004 MASONRY	7	21

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR MASSACHUSETTS

PROGRAM CODES AND TITLE	1979	1981
14.0700 TYPING AND RELATED OCCUPATIONS	230	383
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	133	222
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	125	208
17.0303 AUTO MECHANICS	84	139
17.3506 UPHOLSTERING	88	147
17.1001 CARPENTRY	85	142
17.0401 TOOL AND DIE MAKING	81	84
17.9900 OTHER	77	84
04.0800 GENERAL MERCHANDISE	68	113
14.0300 FILING-OFFICE MACHINES,CLERICAL OCCUP.	63	105
17.2301 MACHINE SHOP	63	105
17.1003 ELECTRICITY	53	89
17.1900 GRAPHIC ARTS OCCUPATIONS	52	86
17.1007 PLUMBING AND PIPEFITTING	48	80
17.1600 DRAFTING OCCUPATIONS	46	77
07.0301 NURSING (ASSOCIATE DEGREE)	42	70
17.1500 ELECTRONIC OCCUPATIONS	42	69
09.0107 FOOD AND NUTRITION	38	63
18.0802 POLICE SCIENCE	38	64
17.2801 FIREMAN TRAINING	30	50
17.0301 BODY AND FENDER REPAIR	30	50
09.0103 CLOTHING AND TEXTILES	31	52
07.0300 HEALTH AIDE	28	46
14.0200 OTHER BUSINESS DATA PROCESSING	26	43
17.2900 QUANTITY FOOD OCCUPATIONS	26	43
09.0201 CARE AND GUIDANCE OF CHILDREN	25	42
07.0302 PRACTICAL (VOCATIONAL) NURSING	24	39
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	24	40

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

MICHIGAN

PROGRAM CODES AND TITLE	1979	1981
14.0700 STENO.,* SECRETARIAL AND RELATED OCCUP.	286	481
14.0900 TYPING AND RELATED OCCUPATIONS	273	454
09.0800 GENERAL MERCHANDISE	268	450
47.0302 AUTO MECHANICS	220	370
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	181	304
07.0303 NURSING ASSISTANT (AIDE)	112	188
09.0203 FOOD MGMT.,& PRODUCTION & SERVICES	103	173
07.0301 NURSING (ASSOCIATE DEGREE)	100	169
17.1001 CARPENTRY	96	161
47.2306 WELDING AND CUTTING	96	161
07.0399 OTHER RADIOLOGIC	95	160
14.0201 COMPUTER AND CONSOLE OPERATORS	94	157
43.0403 POLICE SCIENCE	84	141
09.0102 CHILD DEVELOPMENT	82	138
15.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	82	137
17.2999 OTHER PUBLIC SERVICES	80	135
47.2302 MACHINE SHOP	79	133
09.0106 FAMILY RELATIONS	72	121
09.0107 FOOD AND NUTRITION	72	121
43.0102 LAW ENFORCEMENT TRAINING	70	118
46.0108 ELECTRONIC TECHNOLOGY	65	110
15.9901 AIR POLLUTION TECHNOLOGY	65	109
09.0201 CARE AND GUIDANCE OF CHILDREN	64	108
09.0103 CLOTHING AND TEXTILES	63	106
07.0302 PRACTICAL (VOCATIONAL) NURSING	62	104
01.0100 AGRICULTURAL PRODUCTION	58	96

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR MINNESOTA

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	803	1138
07.9900 OTHER	330	425
01.0100 AGRICULTURAL PRODUCTION	138	258
14.0400 STENO.; SECRETARIAL AND RELATED OCCUP.	137	212
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	129	144
09.0107 FOOD AND NUTRITION	98	159
01.9900 OTHER	94	190
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	90	143
17.0303 AUTO MECHANICS	90	142
07.0303 NURSING ASSISTANT (AIDE)	82	124
07.0201 FOOD SERVICE, PRODUCTION & SERVICES	81	118
16.0100 ELECTRONIC TECHNOLOGY	78	120
04.0800 GENERAL MERCHANDISE	67	105
09.0102 CHILD DEVELOPMENT	61	95
09.0201 CARE AND GUIDANCE OF CHILDREN	61	92
04.9900 OTHER	58	133
14.0900 TYPING AND RELATED OCCUPATIONS	58	92
09.0104 FAMILY RELATIONS	54	84
16.0301 AIR POLLUTION TECHNOLOGY	54	130
01.9900 OTHER	51	127
17.2399 OTHER METALWORKING OCCUPATIONS	46	67
17.1900 GRAPHIC ARTS OCCUPATIONS	45	72
20.0403 CLOTHING AND TEXTILES	42	68
07.0302 PRACTICAL (VOCATIONAL) NURSING	40	60
09.0104 CONSUMER EDUCATION	37	58
14.9900 OTHER	35	171
17.2306 WELDING AND CUTING	35	57

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

MISSISSIPPI

PROGRAM CODES AND TITLE	1979	1981
07.0907 MEDICAL EMERGENCY TECHNICIAN	158	177
01.0100 AGRICULTURAL PRODUCTION	112	127
09.0101 COMPREHENSIVE HOMEMAKING	110	123
14.0300 FILING, OFFICE MACHINES, CLERICAL OCCUP.	102	114
17.2399 OTHER METALWORKING OCCUPATIONS	61	77
04.0800 GENERAL MERCHANDISE	49	85
17.1099 OTHER CONSTRUCTION & MAINT. TRADES	48	73
17.0302 AUTO MECHANICS	46	72
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	42	80
09.0106 FAMILY RELATIONS	39	57
01.0300 AGRICULTURAL MECHANICS	38	61
17.2304 WELDING AND CUTING	38	61
17.2302 MACHINE SHOP	37	40
07.0303 PRACTICAL (VOCATIONAL) NURSING	34	44
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	32	37
15.0103 ARCHITECTUAL TECHNOLOGY	32	36
14.0201 COMPUTER AND CONSOLE OPERATORS	32	36
14.0203 PROGRAMMERS	20	30
17.2400 QUANTITY FOOD OCCUPATIONS	19	31
07.0400 OTHER	18	29
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	17	26
17.1001 CARPENTRY	16	26
17.1900 GRAPHIC ARTS OCCUPATIONS	15	20
17.3200 WOODWORKING OCCUPATIONS	5	20
07.0303 NURSING ASSISTANT (AIDE)	4	20
09.0103 CLOTHING AND TEXTILES	4	18
09.0107 FOOD AND NUTRITION	4	17
04.0700 FOOD SERVICES	15	19

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR MISSOURI

PROGRAM CODES AND TITLE	1979	1981
17.1001 CARPENTRY	186	256
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	155	195
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	94	142
07.0000 GENERAL MERCHANDISE	90	137
09.0101 COMPREHENSIVE HOMEMAKING	72	120
17.0302 AUTO MECHANICS	64	107
13.0700 FOOD SERVICES	54	107
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	51	104
17.1304 WELDING AND CUTING	51	78
04.0503 FOOD MGMT. PRODUCTION & SERVICES	47	71
01.0100 AGRICULTURAL PRODUCTION	45	61
09.0107 FOOD AND NUTRITION	45	69
17.2302 MACHINE SHOP	41	64
17.1500 ELECTRONIC OCCUPATIONS	38	64
07.0700 HEALTH AIDE	35	42
17.1200 ELECTRICAL OCCUPATIONS	35	48
17.1900 GRAPHIC ARTS OCCUPATIONS	34	57
09.0103 CLOTHING AND TEXTILES	33	55
17.1300 WELDING,GENERAL	30	55
17.0301 BODY AND FENDER REPAIR	29	44
16.0405 POLICE SCIENCE	28	44
17.0100 AIR CONDITIONING	28	49
17.0000 MASONRY	28	44
17.0117 SCIENTIFIC DATA TECHNOLOGY	27	34
09.0102 CHILD DEVELOPMENT	26	44
17.1099 OTHER CONSTRUCTION & MAINT. TRADES	25	35
07.0302 PRACTICAL (VOCATIONAL) NURSING	24	35
06.0105 FAMILY RELATIONS	24	40
16.9900 OTHER	23	36
04.9900 OTHER	21	37

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 197A DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR MONTANA

PROGRAM CODES AND TITLE	1979	1981
01.0100 AGRICULTURAL PRODUCTION	48	76
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	22	37
17.2306 WELDING AND CUTING	20	31
17.9400 OTHER	14	15
09.0299 OTHER	13	15
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	13	20
47.0302 AUTO MECHANICS	12	25
47.1300 DRAFTING OCCUPATIONS	12	19
07.0303 NURSING ASSISTANT (AIDE)	11	16
09.0205 INSTITUTIONAL & HOME MGMT. & SERVICES	11	15
07.0302 PRACTICAL (VOCATIONAL) NURSING	10	15
17.1001 CARPENTRY	10	16
04.0800 GENERAL MERCHANDISE	9	14
16.0108 ELECTRONIC TECHNOLOGY	8	9
47.3100 SMALL ENGINE REPAIR	8	13
09.0204 HOME FURNISHING, EQUIPMENT & SERVICES	7	7

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

NEBRASKA

PROGRAM CODES AND TITLE	1979	1981
07.9900 OTHER	206	220
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	144	146
09.0101 COMPREHENSIVE HOMEMAKING	135	279
17.2399 OTHER METALWORKING OCCUPATIONS	109	89
09.0199 OTHER	94	95
17.2899 OTHER PUBLIC SERVICES	58	63
14.0700 TYPING AND RELATED OCCUPATIONS	56	48
01.0100 AGRICULTURAL PRODUCTION	36	63
17.0302 AUTO MECHANICS	30	51
07.0302 PRACTICAL (VOCATIONAL) NURSING	24	43
14.0700 STENO.- SECRETARIAL AND RELATED OCCUP.	24	42
14.0500 FILING-OFFICE MACHINES,CLERICAL OCCUP.	23	39
17.1001 CARPENTRY	17	23
17.1100 CUSTODIAL SERVICE	17	29
01.0300 AGRICULTURAL MECHANICS	13	19
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	13	21
01.0200 AGRICULTURAL SUPPLIES/SERVICES	12	17
17.1300 DRAFTING OCCUPATIONS	12	20
04.0800 GENERAL MERCHANDISE	11	20
17.1400 ELECTRICAL OCCUPATIONS	11	18
17.1500 ELECTRONIC OCCUPATIONS	11	19
14.0299 OTHER BUSINESS DATA PROCESSING	10	11
04.1700 REAL ESTATE	8	8

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	NEVADA 1979	NEVADA 1981
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	41	54
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	28	48
15.0106 CIVIL TECHNOLOGY	23	28
04.0101 COMPREHENSIVE HOMEMAKING	22	27
14.0299 OTHER BUSINESS DATA PROCESSING	22	23
14.0900 TYPING AND RELATED OCCUPATIONS	16	26
43.0202 FIRE AND FIRE SAFETY TECHNOLOGY	18	19
17.0503 WORKING ASSISTANT (AIDE)	17	25
09.0103 CLOTHING AND TEXTILES	16	19
09.0107 FOOD AND NUTRITION	16	19
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	16	23
04.0199 OTHER	15	18
01.0100 AGRICULTURAL PRODUCTION	12	12
07.0101 DENTAL ASSISTANT	11	14
13.0600 PERSONNEL TRAINING AND RELATED OCCUP.	11	12
17.0302 AUTO MECHANICS	11	14
17.3400 WOODWORKING OCCUPATIONS	11	11
07.0703 MEDICAL LABORATORY ASSISTING	10	18
09.0102 CHILD DEVELOPMENT	10	13
15.0101 ARCHITECTURAL TECHNOLOGY	10	11
17.0103 AIR CONDITIONING	9	9
01.0300 AGRICULTURAL MECHANICS	9	9
09.0201 CARE AND GUIDANCE OF CHILDREN	8	10
14.0700 STENO.& SECRETARIAL AND RELATED OCCUP.	8	21
14.0108 ELECTRONIC TECHNOLOGY	8	9
04.0800 GENERAL MERCHANDISE	7	9
07.0904 MEDICAL ASSISTANT	7	11

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR NEW HAMPSHIRE

PROGRAM CODES AND TITLE	1979	1981
09.0199 OTHER	48	76
07.0909 MORTUARY SCIENCE	19	21
17.0302 AUTO MECHANICS	18	30
04.0107 FOOD AND NUTRITION	17	20
01.0500 ORNAMENTAL HORTICULTURE	10	14
04.0800 GENERAL MERCHANDISE	9	17
01.0300 AGRICULTURAL MECHANICS	8	11
09.0101 COMPREHENSIVE HOMEMAKING	8	11
09.0103 CLOTHING AND TEXTILES	7	11
17.1900 GRAPHIC ARTS OCCUPATIONS	7	8
17.9900 OTHER	7	10
01.0600 AGRICULTURAL RESOURCES	5	6
09.0104 FAMILY RELATIONS	5	8
01.0700 FORESTRY	4	8
09.0201 CARE AND GUIDANCE OF CHILDREN	4	10
09.0203 FOOD SERV., PRODUCTION & SERVICES	4	8
16.0109 ELECTROMECHANICAL TECHNOLOGY	4	4
09.0102 CHILD DEVELOPMENT	3	3
17.1400 DRAFTING OCCUPATIONS	3	10
04.9900 OTHER	2	5

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM FIRST ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	NEW JERSEY 1979	NEW JERSEY 1981
14.0900 TYPING AND RELATED OCCUPATIONS	261	603
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	454	407
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	217	378
16.0403 POLICE SCIENCE	143	160
16.9901 AIR POLLUTION TECHNOLOGY	140	284
14.0299 OTHER BUSINESS DATA PROCESSING	137	175
07.0399 OTHER NURSING	132	144
16.0108 ELECTRONIC TECHNOLOGY	106	137
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	96	190
17.0302 AUTO MECHANICS	84	118
14.9200 OTHER	79	111
17.1500 ELECTRONIC OCCUPATIONS	40	56
17.2602 COSMETOLOGY	36	49
07.0203 MEDICAL LABORATORY ASSISTING	34	51
17.0100 AIR CONDITIONING	29	44
04.0199 OTHER	28	28
04.2000 RETAIL TRADE, OTHER	25	27
04.0200 APPAREL AND ACCESSORIES	23	28
07.9900 OTHER	22	50
16.0104 AUTOMOTIVE TECHNOLOGY	21	38
17.0700 COMMERCIAL ART OCCUPATION	19	29
14.0201 COMPUTER AND CONSOLE OPERATORS	18	36
17.1300 DRAFTING OCCUPATIONS	15	31
07.0101 DENTAL ASSISTANT	14	23
17.0400 AVIATION OCCUPATIONS	14	16

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

NEW MEXICO

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	242	308
14.9900 OTHER	151	184
07.9900 OTHER	43	88
09.0299 OTHER	40	50
01.0100 AGRICULTURAL PRODUCTION	40	50
04.0101 COMPREHENSIVE HOMEMAKING	38	41
09.0107 FOOD AND NUTRITION	35	40
01.0800 GENERAL AGRICULTURE	27	28
09.0103 CLOTHING AND TEXTILES	27	28
16.0108 ELECTRONIC TECHNOLOGY	11	18
09.0106 FAMILY RELATIONS	8	9
17.1002 ELECTRICITY	8	10
07.0302 PRACTICAL (VOCATIONAL) NURSING	6	10
14.0900 TYPING AND RELATED OCCUPATIONS	6	10
01.2200 OTHER	5	6
04.0701 HOUSING AND HOME FURNISHINGS	4	6
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	4	8
17.1200 DIESEL MECHANIC	4	8
04.0709 FOOD SERVICES	3	6
09.0102 CHILD DEVELOPMENT	3	6
17.1004 MASONRY	3	6
17.1007 PLUMBING AND PIPEFITTING	3	7
17.1099 OTHER CONSTRUCTION & MAINT. TRADES	3	10

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

NEW YORK

PROGRAM CODES AND TITLE	1979	1981
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	2285	2324
17.9900 OTHER	1042	1100
47.0399 OTHER AUTOMOTIVE	736	708
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	637	855
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	547	790
07.0301 NURSING (ASSOCIATE DEGREE)	422	606
12.9900 OTHER	335	470
14.0201 COMPUTER AND CONSOLE OPERATORS	317	315
09.0203 FOOD MGMT., PRODUCTION & SERVICES	255	286
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	198	203
04.0800 GENERAL MERCHANDISE	188	275
09.0701 CARE AND GUIDANCE OF CHILDREN	141	140
09.0204 HOME FURNISHING, EQUIPMENT & SERVICES	123	118
17.2399 OTHER METALWORKING OCCUPATIONS	123	105
07.9900 OTHER	100	119
01.0400 OTHER	88	128
17.2699 OTHER PERSONAL SERVICES	86	132
07.0303 NURSING ASSISTANT (AIDE)	76	117
17.0700 COMMERCIAL ART OCCUPATION	74	84
14.0401 AIR POLLUTION TECHNOLOGY	73	84
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	70	165

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR NORTH CAROLINA

PROGRAM CODES AND TITLE	1979	1981
17.2801 FIREMAN TRAINING	843	859
09.0199 OTHER	634	738
17.9999 OTHER	485	507
17.1700 FOREMANSHIP SUPERVISOR & MGMT. DEV.	198	280
17.0600 FOOD DISTRIBUTION	194	201
09.0101 COMPREHENSIVE HOMEMAKING	186	214
14.9900 OTHER	149	186
09.0201 INSTITUTIONAL & HOME MGMT. & SERVICES	167	169
17.2002 LAW ENFORCEMENT TRAINING	159	240
09.0104 FAMILY RELATIONS	142	164
17.0402 AUTO MECHANICS	135	242
14.0100 FILING,OFFICE MACHINES,CLERICAL OCCUP.	95	121
17.1300 DRAFTING OCCUPATIONS	95	165
14.0900 TYPING AND RELATED OCCUPATIONS	94	113
17.1001 CARPENTRY	93	148
17.1200 WOODWORKING OCCUPATIONS	92	137
17.1004 MASONRY	91	142
17.1002 ELECTRICITY	84	132
17.1500 TEXTILE PRODUCTION AND FABRICATION	84	146
07.0800 OTHER	79	120
09.0103 CLOTHING AND TEXTILES	71	82
07.0407 MEDICAL EMERGENCY TECHNICIAN	67	104
09.0107 FOOD AND NUTRITION	65	75
01.0400 OTHER	61	102
17.2302 MACHINE SHOP	58	79
17.3100 SMALL ENGINE REPAIR	58	91
04.0000 RETAIL TRADE, OTHER	57	58
14.0203 PROGRAMMERS	57	68

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

NORTH DAKOTA

PROGRAM CODES	AND TITLE	1979	1981
01.0100	AGRICULTURAL PRODUCTION	36	62
04.0200	APPAREL AND ACCESSORIES	33	39
07.0303	NURSING ASSISTANT (AIDE)	28	43
47.0603	AUTO MECHANICS	28	38
09.0101	COMPREHENSIVE HOMEMAKING	25	47
17.1001	CARPENTRY	22	28
14.0700	STENO., SECRETARIAL AND RELATED OCCUP.	21	34
14.0400	TYPING AND RELATED OCCUPATIONS	20	31
09.0107	FOOD AND NUTRITION	15	24
14.0300	FILING,OFFICE MACHINES,CLERICAL OCCUP.	14	20
47.0500	ELECTRONIC OCCUPATIONS	14	24
14.0499	OTHER BUSINESS DATA PROCESSING	13	13
09.0201	CARE AND GUIDANCE OF CHILDREN	12	18
14.0100	ACCOUNTING AND COMPUTING OCCUPATIONS	12	19
17.2306	WELDING AND CUTING	12	19
04.0400	OTHER	11	14
01.0200	AGRICULTURAL MECHANICS	10	19
09.0106	FAMILY RELATIONS	10	18
01.9400	OTHER	8	14

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR OHIO

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	497	795
09.0101 COMPREHENSIVE HOMEMAKING	446	717
17.0102 AUTO MECHANICS	369	487
17.1000 OTHER CONSTRUCTION & MAINT. TRADES	327	403
14.0700 STENO.& SECRETARIAL AND RELATED OCCUP.	271	440
17.1500 ELECTRONIC OCCUPATIONS	243	444
01.0100 AGRICULTURAL PRODUCTION	239	401
14.0201 COMPUTER AND CLERICAL OPERATORS	238	246
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	238	537
17.2306 WELDING AND CUTING	226	303
14.9900 OTHER	215	249
17.2302 MACHINE SHOP	215	353
04.0800 GENERAL MERCHANDISE	195	309
09.0199 OTHER	188	303
17.1100 DRAFTING OCCUPATIONS	175	186
14.0400 TYPING AND RELATED OCCUPATIONS	164	242
17.0301 BODY AND FENDER REPAIR	159	209
17.1902 ELECTRICITY	157	211
17.2502 COSMETOLOGY	145	158
04.0200 OTHER	144	175
17.1001 CARPENTRY	138	181
17.2801 FIREMAN TRAINING	125	126
01.0300 ORNAMENTAL HORTICULTURE	115	146
17.0100 AIR CONDITIONING	111	134
09.0201 CARE AND GUIDANCE OF CHILDREN	108	157
07.5900 OTHER	104	151
09.0203 FOOD MGMT., PRODUCTION & SERVICES	91	142
17.2802 LAW ENFORCEMENT TRAINING	86	122

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

OKLAHOMA

PROGRAM CODES AND TITLE	1979	1981
09.0104 CONSUMER EDUCATION	230	233
17.0900 OTHER	111	144
14.0900 OTHER	48	57
04.0900 OTHER	45	36
01.0100 AGRICULTURAL PRODUCTION	34	95
17.1001 CARPENTRY	26	41
07.0900 OTHER	25	27
11.2402 LAW ENFORCEMENT TRAINING	23	24
09.0203 FOOD MGMT., PRODUCTION & SERVICES	21	32
09.0299 OTHER	21	24
17.1500 ELECTRONIC OCCUPATIONS	14	48
09.0106 FAMILY RELATIONS	14	37
14.0100 FILING, OFFICE MACHINES, CLERICAL OCCUP.	14	47
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	14	47
14.0201 PROGRAMMERS	10	18
17.0302 AUTO MECHANICS	9	14
01.0500 ORNAMENTAL HORTICULTURE	8	17
09.0201 CARE AND GUIDANCE OF CHILDREN	7	17
12.2402 COSMETOLOGY	4	9
17.1900 DIESEL MECHANIC	4	8
07.0302 PRACTICAL (VOCATIONAL) NURSING	3	8
07.0199 OTHER DENTAL	3	6
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	2	6
17.1004 MASONRY	2	6
14.0400 INFORMATION COMMUNICATION OCCUPATIONS	1	3
17.0700 APPLIANCE REPAIR	1	3
17.1300 DRAFTING OCCUPATIONS	1	11

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

OREGON

PROGRAM CODES AND TITLE	1979	1981
17.0302 AUTO MECHANICS	171	226
07.0303 NURSING ASSISTANT (AIDE)	141	160
07.0301 NURSING (ASSOCIATE DEGREE)	124	142
17.1001 CARPENTRY	100	114
17.1900 QUANTITY FOOD OCCUPATIONS	99	120
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	91	140
01.0100 AGRICULTURAL PRODUCTION	88	98
15.0106 CIVIL TECHNOLOGY	88	100
15.0108 ELECTRONIC TECHNOLOGY	79	101
17.2402 MACHINE SHOP	78	91
17.1300 DRAFTING OCCUPATIONS	70	91
17.0200 INFORMATION COMMUNICATION OCCUPATIONS	69	83
17.2304 WELDING AND CUTTING	69	99
04.0800 GENERAL MERCHANDISE	56	59
01.0200 ORNAMENTAL HORTICULTURE	51	58
17.2807 LAW ENFORCEMENT TRAINING	50	60
17.0301 BODY AND FENDER REPAIR	49	60
17.1900 GRAPHIC ARTS OCCUPATIONS	46	63
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	44	76
01.0200 AGRICULTURAL RESOURCES	43	49
07.0302 PRACTICAL (VOCATIONAL) NURSING	41	55
17.2602 COSMETOLOGY	39	48
07.0299 OTHER	38	46
01.0900 FORESTRY	35	44
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	33	80
14.0400 TYPING AND RELATED OCCUPATIONS	28	35
15.0113 MECHANICAL TECHNOLOGY	27	40
07.0501 RADIOLOGIC TECHNOLOGY	26	31

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1978 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR PENSYLVANIA

PROGRAM CODES AND TITLE	1979	1981
09.0101 COMPREHENSIVE HOMEMAKING	533	850
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	418	664
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	297	479
17.9600 OTHER	288	458
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	243	386
17.0302 AUTO MECHANICS	180	278
07.2200 OTHER	147	180
14.0400 TYPING AND RELATED OCCUPATIONS	143	230
17.1001 CARPENTRY	137	219
01.0100 AGRICULTURAL PRODUCTION	131	204
19.0701 AIR POLLUTION TECHNOLOGY	113	85
04.0800 GENERAL MERCHANDISE	113	67
17.2306 WELDING AND CUTING	103	63
07.0302 PRACTICAL (VOCATIONAL) NURSING	101	71
09.0203 FOOD MGMT., PRODUCTION & SERVICES	87	54
14.0309 MACHINE SOOP	85	46
14.0204 OTHER BUSINESS DATA PROCESSING	60	38
17.3600 WOODWORKING OCCUPATIONS	60	40
19.0102 ELECTRONIC TECHNOLOGY	57	65
19.2607 COSMETOLOGY	57	38
17.0301 BODY AND FENDER REPAIR	56	32
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	52	79
17.3300 TEXTILE PRODUCTION AND FABRICATION	50	124
04.0103 CLOTHING AND TEXTILES	47	124
17.1400 ELECTRICAL OCCUPATIONS	42	49

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

RHODE ISLAND

PROGRAM CODES AND TITLE	1979	1981
14.9900 OTHER	116	139
17.9900 OTHER	59	74
09.0101 COMPREHENSIVE HOMEMAKING	40	52
09.0104 CONSUMER EDUCATION	47	57
17.0302 AUTO MECHANICS	24	28
17.2201 MACHINE TOOL OPERATION	21	24
04.0800 GENERAL MERCHANDISE	21	26
07.9900 OTHER	15	16
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	15	19
07.0301 NURSING (ASSOCIATE DEGREE)	14	13
17.0301 BODY AND FENDER REPAIR	11	14
17.1003 ELECTRICITY	11	14
17.2207 TOOL AND DIE MAKING	11	14
17.1001 CARPENTRY	10	10
07.0706 HEALTH AIDE	8	9
12.0602 COSMETOLOGY	7	9
09.0201 CARE AND GUIDANCE OF CHILDREN	6	9
16.0110 ENVIRONMENTAL CONTROL TECHNOLOGY	6	7
17.0100 COMMERCIAL ART OCCUPATION	4	7
14.0201 PROGRAMMERS	5	6
14.0299 OTHER BUSINESS DATA PROCESSING	5	6

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR SOUTH CAROLINA

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	267	238
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	210	372
07.0400 WHOLESALE TRADE, OTHER	134	151
01.0400 OTHER	88	88
07.9900 OTHER	64	86
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	63	128
09.0199 OTHER	45	47
17.0502 AUTO MECHANICS	44	91
09.0106 FAMILY RELATIONS	39	54
04.1100 HOTEL AND LODGING	37	43
09.0101 COMPREHENSIVE HOMEMAKING	37	73
16.0605 POLICE SCIENCE	37	69
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	36	68
17.1001 CARPENTRY	36	58
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	35	61
14.9900 OTHER	32	39
17.2602 COSMETOLOGY	26	34
17.1004 MASONRY	25	49
16.0108 ELECTRONIC TECHNOLOGY	22	41
09.0109 CHILD DEVELOPMENT	18	20
17.1002 ELECTRICITY	14	34
17.0501 BODY AND FENDER REPAIR	14	23
47.0100 AIR CONDITIONING	13	27
17.1500 ELECTRONIC OCCUPATIONS	13	24
17.2506 WELDING AND CUTING	13	45

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR SOUTH DAKOTA

PROGRAM CODES AND TITLE	1979	1981
04.0800 GENERAL MERCHANDISE	49	53
01.0100 AGRICULTURAL PRODUCTION	36	58
14.0300 FILING, OFFICE MACHINES, CLERICAL OCCUP.	29	33
07.0305 NURSING ASSISTANT (AIDE)	23	34
17.9900 OTHER	19	21
17.1001 CARPENTRY	12	20
17.1500 ELECTRONIC OCCUPATIONS	12	20
08.0701 FOOD MGMT., PRODUCTION & SERVICES	9	12
09.0299 OTHER	9	9
17.1302 MACHINE SHOP	8	10
07.0302 PRACTICAL (VOCATIONAL) NURSING	7	10
17.0302 AUTO MECHANICS	7	17
01.9900 OTHER	6	8
17.2306 WELDING AND CUTING	6	12
09.0104 FAMILY RELATIONS	4	5
14.0400 TYPING AND RELATED OCCUPATIONS	4	8
07.0399 OTHER NURSING	3	5

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	TENNESSE 1979	TENNESSE 1981
17.9900 OTHER	308	376
17.0302 AUTO MECHANICS	111	170
17.1400 ELECTRICAL OCCUPATIONS	107	155
07.9900 OTHER	105	139
01.0100 AGRICULTURAL PRODUCTION	92	128
14.0600 SUPERVISORY AND ADMIN. MGMT. OCCUP.	79	110
09.0201 CARE AND GUIDANCE OF CHILDREN	46	85
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	57	87
17.1300 DRAFTING OCCUPATIONS	57	94
17.0900 COMMERCIAL PHOTOGRAPHY OCCUPATIONS	53	64
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	50	84
17.0501 BODY AND FENDER REPAIR	47	65
17.2602 COSMETOLOGY	47	104
17.1500 ELECTRONIC OCCUPATIONS	46	75
17.2399 OTHER METALWORKING OCCUPATIONS	45	47
04.0203 FOOD MGMT., PRODUCTION & SERVICES	39	59
17.0100 AIR CONDITIONING	39	54
09.0101 COMPREHENSIVE HOMEMAKING	37	111
07.0906 HEALTH AIDE	36	47
14.0300 FILING, OFFICE MACHINES, CLERICAL OCCUP.	36	48
17.3100 SMALL ENGINE REPAIR	35	47
17.1900 GRAPHIC ARTS OCCUPATIONS	32	43
16.0107 ELECTRICAL TECHNOLOGY	31	45
14.0203 PROGRAMMERS	29	42
01.0300 AGRICULTURAL MECHANICS	28	34
16.0103 ARCHITECTUAL TECHNOLOGY	25	35
01.0500 ORNAMENTAL HORTICULTURE	21	24
16.0601 POLICE SCIENCE	21	32
17.1001 CARPENTRY	21	41

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	TEXAS 1979	TEXAS 1981
14.9900 OTHER	1361	1551
17.9900 OTHER	1058	1197
17.2801 FIREMAN TRAINING	574	648
09.0106 FAMILY RELATIONS	369	409
01.0100 AGRICULTURAL PRODUCTION	271	472
17.2802 LAW ENFORCEMENT TRAINING	322	374
07.9900 OTHER	216	238
07.0301 NURSING (ASSOCIATE DEGREE)	207	185
04.9900 OTHER	191	314
04.1700 REAL ESTATE	180	312
09.0299 OTHER	170	248
17.0302 AUTO MECHANICS	160	177
04.1200 INDUSTRIAL MARKETING	151	155
09.0201 CARE AND GUIDANCE OF CHILDREN	140	130
17.1001 CARPENTRY	143	140
17.0399 OTHER AUTOMOTIVE	139	233
17.2306 WELDING AND CUTING	134	266
16.0109 ELECTROMECHANICAL TECHNOLOGY	131	149
17.0100 AIR CONDITIONING	124	118
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	122	194
16.9901 AIR POLLUTION TECHNOLOGY	120	202
17.1500 ELECTRONIC OCCUPATIONS	100	200
09.0102 CHILD DEVELOPMENT	97	126
04.0102 CONSUMER EDUCATION	92	158
14.0203 PROGRAMMERS	92	145
16.0104 CIVIL TECHNOLOGY	96	148
17.1400 ELECTRICAL OCCUPATIONS	82	101
09.0109 HOUSING AND HOME FURNISHINGS	78	110

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	UTAH 1979	UTAH 1981
16.9901 AIR POLLUTION TECHNOLOGY	63	69
17.1100 CUSTODIAL SERVICE	44	47
14.0900 TYPING AND RELATED OCCUPATIONS	41	70
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	39	66
17.2305 SHEET METAL	38	43
17.0502 AUTO MECHANICS	32	46
17.1004 CARPENTRY	31	53
17.2309 TOOL AND DIE MAKING	27	28
07.9900 OTHER	25	29
17.1700 FOREMANSHIP SUPERVISOR & MGMT. DEV.	25	34
17.2200 MARITIME OCCUPATIONS	22	48
04.0800 GENERAL MERCHANDISE	22	25
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	22	35
17.1004 MASONRY	21	17
17.9900 OTHER	21	17
04.0400 OTHER	21	17
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	20	23
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	20	24
17.2303 MACHINE TOOL OPERATION	20	24
09.0201 CARE AND GUIDANCE OF CHILDREN	19	16
01.0100 AGRICULTURAL PRODUCTION	9	16

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	VERMONT 1979	VERMONT 1981
09.0101 COMPREHENSIVE HOMEMAKING	103	137
14.0700 STENO.,& SECRETARIAL AND RELATED OCCUP.	45	59
17.0900 COMMERCIAL PHOTOGRAPHY OCCUPATIONS	27	27
04.0800 GENERAL MERCHANDISE	24	27
17.0302 AUTO MECHANICS	19	26
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	17	18
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	14	18
07.0301 NURSING ASSISTANT,AIDE)	13	21
17.1500 ELECTRONIC OCCUPATIONS	11	15
17.2900 QUANTITY FOOD OCCUPATIONS	11	15
01.2900 OTHER	10	14
01.0100 AGRICULTURAL PRODUCTION	9	13
01.0400 AGRICULTURAL RESOURCES	9	9
17.1900 GRAPHIC ARTS OCCUPATIONS	9	11

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	VIRGINIA 1979	VIRGINIA 1981
09.0101 COMPREHENSIVE HOMEMAKING	446	675
14.0900 TYPING AND RELATED OCCUPATIONS	246	432
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	125	214
17.0201 DRAFTING	124	150
09.1002 ELECTRICITY	118	130
17.0502 AUTO MECHANICS	111	167
07.0301 NURSING (ASSOCIATE DEGREE)	102	144
14.0800 OTHER	102	147
04.0800 GENERAL MERCHANDISE	101	171
14.0400 OTHER	101	172
14.0903 OFFICE SCIENCE	95	154
14.0500 SUPERVISORY AND ADMIN. MGMT. OCCUP.	84	140
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	81	137
04.1400 REAL ESTATE	77	152
07.1400 MEDICAL OCCUPATIONS	72	103
17.1000 METALWORK	70	96
17.1200 DRAFTING OCCUPATIONS	70	96
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	67	101
17.1001 CARPENTRY	64	87
01.0800 OTHER	62	113
12.2403 COSMETOLOGY	56	87
09.0800 OTHER	54	90
03.0401 OTHER	48	60
17.1007 PLUMBING AND PIPEFITTING	48	64
17.0100 AIR CONDITIONING	47	65
16.0108 ELECTRONIC TECHNOLOGY	46	78
17.2400 WOODWORKING OCCUPATIONS	41	47
01.0100 AGRICULTURAL PRODUCTION	37	60

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	WASHINGTON 1979	WASHINGTON 1981
04.1700 REAL ESTATE	197	241
17.1700 FOREMANSHIP SUPERVISOR & MGMT. DEV.	158	334
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	143	307
16.0901 AIR POLLUTION TECHNOLOGY	125	142
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	105	160
07.0301 NURSING (ASSOCIATE DEGREE)	88	136
14.0299 OTHER BUSINESS DATA PROCESSING	81	83
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	76	153
07.0303 NURSING ASSISTANT (AIDE)	71	92
01.9900 OTHER	63	78
07.0302 PRACTICAL (VOCATIONAL) NURSING	59	81
01.0100 AGRICULTURAL PRODUCTION	48	103
17.2802 LAW ENFORCEMENT TRAINING	44	68
17.9900 OTHER	43	77
04.0600 FOOD DISTRIBUTION	42	48
07.0101 DENTAL ASSISTANT	42	48
01.0300 AGRICULTURAL MECHANICS	37	63
16.0108 ELECTRONIC TECHNOLOGY	36	64
04.0700 FOOD SERVICES	35	38
07.0399 OTHER NURSING	34	35
01.0500 ORNAMENTAL HORTICULTURE	31	51
14.0600 PERSONNEL TRAINING AND RELATED OCCUP.	31	33
14.0800 SUPERVISORY AND ADMIN. MGMT. OCCUP.	29	30
14.9900 OTHER	26	88
17.2306 WELDING AND CUTING	23	66
17.2900 QUANTITY FOOD OCCUPATIONS	21	27

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

WEST VIRGINIA

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	311	188
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	120	211
09.0101 COMPREHENSIVE HOMEMAKING	91	160
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	69	125
01.0100 AGRICULTURAL PRODUCTION	48	83
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	43	67
09.0106 FAMILY RELATIONS	36	40
09.0109 HOUSING AND HOME FURNISHINGS	33	64
09.0107 FOOD AND NUTRITION	30	45
17.0301 BODY AND FENDER REPAIR	28	13
17.2306 WELDING AND CUTING	19	37
07.0807 MEDICAL EMERGENCY TECHNICIAN	14	18
17.1300 DRAFTING OCCUPATIONS	13	21
14.0900 TYPING AND RELATED OCCUPATIONS	12	21
17.0302 AUTO MECHANICS	12	26
07.0301 NURSING ASSISTANT (AIDE)	9	18
09.0203 FOOD MGMT., PRODUCTION & SERVICES	9	17
09.0205 INSTITUTIONAL & HOME MGMT. & SERVICES	8	15
04.0800 GENERAL MERCHANDISE	7	13
04.9900 OTHER	7	12
17.1001 CARPENTRY	6	10
07.0399 OTHER NURSING	5	7
07.0904 MEDICAL ASSISTANT	5	6
09.0201 CARE AND GUIDANCE OF CHILDREN	5	9
14.0201 COMPUTER AND CONSOLE OPERATORS	5	5
14.9900 OTHER	5	8

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

WISCONSIN

PROGRAM CODES AND TITLE		1979	1981
16.9901	AIR POLLUTION TECHNOLOGY	594	604
07.9900	OTHER	315	358
17.2900	OTHER	204	339
17.2250	MARITIME OCCUPATIONS	136	1
17.2801	FIREMAN TRAINING	98	170
09.0107	FOOD AND NUTRITION	90	159
07.0399	OTHER NURSING	78	152
17.1500	ELECTRONIC OCCUPATIONS	61	77
14.0800	SUPERVISORY AND ADMIN. MGMT. OCCUP.	60	99
17.2802	LAW ENFORCEMENT TRAINING	59	108
09.0105	CLOTHING AND TEXTILES	52	126
14.0100	ACCOUNTING AND COMPUTING OCCUPATIONS	47	109
04.0800	GENERAL MERCHANDISE	43	93
17.2306	WELDING AND CUTING	38	97
17.2602	COSMETOLOGY	34	65
07.0907	MEDICAL EMERGENCY TECHNICIAN	33	29
04.1700	REAL ESTATE	28	42
17.2900	QUANTITY FOOD OCCUPATIONS	24	34
09.0109	HOUSING AND HOME FURNISHINGS	23	45
17.0399	OTHER AUTOMOTIVE	21	69
14.0600	PERSONNEL TRAINING AND RELATED OCCUP.	20	21
09.0201	CARE AND GUIDANCE OF CHILDREN	19	31
04.0400	FINANCE AND CREDIT	16	22
17.1700	FOREMANSHIP SUPERVISOR & MGMT. DEV.	16	25
17.2899	OTHER PUBLIC SERVICES	14	23
09.0104	CONSUMER EDUCATION	13	75
17.1200	DIESEL MECHANIC	12	17

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED**
IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

PROGRAM CODES AND TITLE	WYOMING 1979	WYOMING 1981
07.0399 OTHER NURSING	10	15
09.0299 OTHER	6	9
17.9900 OTHER	5	7
01.0100 AGRICULTURAL PRODUCTION	4	19
04.0100 ADVERTISING SERVICES	4	5
04.9900 OTHER	3	5
17.1100 CUSTODIAL SERVICE	3	5
04.0400 FINANCE AND CREDIT	2	4
16.9901 AIR POLLUTION TECHNOLOGY	2	7
16.0106 CIVIL TECHNOLOGY	1	3
17.1004 MASONRY	1	1

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

TABLE 20 (continued)

HIGHEST RANKING* 20% OF VOCATIONAL EDUCATION PROGRAMS BY ESTIMATED NUMBER OF TEACHERS NEEDED** IN FISCAL YEARS 1979 AND 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR

WASHINGTON, DC

PROGRAM CODES AND TITLE	1979	1981
17.9900 OTHER	350	359
14.0300 FILING,OFFICE MACHINES,CLERICAL OCCUP.	55	59
14.0100 ACCOUNTING AND COMPUTING OCCUPATIONS	29	30
07.9900 OTHER	18	19
14.0700 STENO., SECRETARIAL AND RELATED OCCUP.	13	15
14.9900 OTHER	12	12
09.0202 CLOTHING MGMT., PRODUCTION & SERVICES	9	11
14.0900 TYPING AND RELATED OCCUPATIONS	8	10
04.9900 OTHER	6	6
09.0101 COMPREHENSIVE HOMEMAKING	6	7
09.0201 CARE AND GUIDANCE OF CHILDREN	5	6
09.0203 FOOD MGMT., PRODUCTION & SERVICES	4	4
01.0500 ORNAMENTAL HORTICULTURE	2	2
07.0103 DENTAL LABORATORY TECHNOLOGY	2	2

**DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER
*RANKING IS IN DECREASING ORDER OF TEACHERS NEEDED IN FY 1979.

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TABLE 21

Estimated Number of Students and Teachers by Vocational Education Program for FY 1976, FY 1979, and FY 1981 Assuming Medium (10 Percent) Annual Turnover Rate for _____ (State)

Table 21 Explained

Table 21 contains a state-by-state presentation of the number of students and teachers in fiscal year 1976, the number of students projected for fiscal years 1979 and 1981, (all taken from state data), the number of teachers for fiscal years 1979 and 1981, and estimated needs for additional teachers for fiscal years 1977-1979 and fiscal years 1977-1981, as computed by using the model described in the study. This data was prepared as an intermediate step in producing the previously described tables.

Since the full table is 204 pages, it was not included in the report but can be obtained by the sponsor on request. Tables for Alabama and Washington, D. C. are included as examples.

Persons expecting to use state level data should recheck the data from this report with the state division of vocational education regarding any changes in programs which would increase or decrease the estimated needs for teachers. Further, if a state has actual turnover rates for teachers, the rates for that state should be used in determining the number of teachers needed for a future year.

TABLE 21

ESTIMATED NUMBER OF STUDENTS AND TEACHERS BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR ALABAMA

PROGRAM CODES	1976 STUDENTS	1976 TEACHERS	1979 STUDENTS	1979 TEACHERS	1979 TEACHERS NEEDED*	1981 STUDENTS	1981 TEACHERS	1981 TEACHERS NEEDED*
01.0000	5807	499	60414	519	170	63799	548	299
01.0100	12511	107	13456	116	40	14765	127	73
01.0200	653	6	646	6	2	134	1	-1
01.0300	13665	117	12973	111	29	13908	119	61
01.0400	163	1	178	2	1	191	2	1
01.0500	4333	37	4369	38	11	4680	40	22
01.0600	240	2	247	2	1	281	2	1
01.0700	885	8	1012	9	3	1181	10	6
01.9900	25627	220	27513	236	82	29699	246	136
04.0000	7242	139	6723	129	32	7138	138	68
04.0100	84	2	97	2	1	93	2	1
04.0200	535	10	713	14	6	807	15	10
04.0300	179	3	199	4	1	197	4	2
04.0400	118	2	131	3	1	137	3	1
04.0500	104	2	111	2	1	110	2	1
04.0600	1043	20	1068	20	5	1095	21	11
04.0700	838	16	1149	22	11	1365	26	16
04.0800	1797	34	1813	35	11	1856	34	14
04.0900	154	3	170	3	1	197	4	2
04.1000	76	1	104	2	1	108	2	1
04.1100	35	1	24	0	0	24	0	0
04.1200	58	1	44	1	0	44	1	0
04.1300	55	1	43	1	0	45	1	0
04.1500	333	6	361	7	2	372	7	4
04.1600	102	2	94	2	0	84	2	1
04.1700	394	8	339	6	1	367	7	3
04.1800	79	2	97	2	1	99	2	1
04.1900	31	1	24	0	0	25	0	0
04.2000	178	3	125	2	0	131	3	1
04.3100	66	1	55	1	0	52	1	0
04.9900	983	19	0	0	-13	0	0	-9
07.0000	5370	161	5730	172	59	5961	179	95
07.0101	37	1	93	3	2	44	1	1
07.0203	101	3	0	0	-2	0	0	-2
07.0301	471	14	351	11	1	370	11	4
07.0302	2351	70	2317	69	20	2501	75	40
07.0303	212	6	258	8	3	273	8	5
07.0399	44	1	0	0	-1	0	0	-1
07.0499	16	0	0	0	0	0	0	0
07.0906	629	19	630	19	6	569	17	9

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 21 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR ALABAMA

PROGRAM CODES	1976 STUDENTS	1976 TEACHERS	1979 STUDENTS	1979 TEACHERS	1979 TEACHERS NEEDED*	1981 STUDENTS	1981 TEACHERS	1981 TEACHERS NEEDED*
07.0907	343	10	234	7	0	247	7	1
07.9900	1164	35	1847	55	31	1955	59	41
09.0100	76147	576	87936	665	262	94848	717	429
09.0101	25269	191	29765	225	91	37093	243	147
09.0102	372	3	566	4	2	619	5	3
09.0103	740	6	995	7	3	963	7	4
09.0104	641	5	889	7	3	929	7	5
09.0106	229	2	609	5	3	664	5	4
09.0107	479	4	883	7	4	963	7	5
09.0108	3	0	93	1	1	91	1	1
09.0109	551	4	665	5	2	717	5	3
09.0199	47863	362	53579	405	152	57769	437	256
09.0200	8388	147	5221	91	-11	5548	97	23
09.0201	1168	20	1241	22	-7	1314	23	13
09.0202	2182	38	2272	40	13	2448	43	24
09.0203	1388	24	1390	24	7	1433	25	13
09.0204	10	0	0	0	0	0	0	0
09.0205	449	8	318	6	0	353	6	2
09.0299	3191	56	0	0	-39	0	0	-28
14.0000	27703	553	32090	640	253	36365	726	449
14.0100	3766	75	4661	93	40	5485	109	72
14.0201	534	11	614	12	5	774	15	10
14.0299	1399	28	1197	24	4	1506	30	16
14.0300	11776	235	13591	271	107	15226	304	186
14.0600	270	5	237	5	1	244	5	3
14.0700	6032	120	6429	129	44	6740	135	75
14.0900	3893	78	5195	104	49	6160	123	84
14.9900	33	1	156	3	3	170	3	3
16.0000	543	15	653	18	8	910	25	18
16.0104	0	0	0	0	0	50	1	1
16.0105	0	0	18	0	0	20	1	1
16.0108	367	10	445	12	5	584	16	11
16.0113	0	0	26	1	1	28	1	1
16.0603	40	1	42	1	0	46	1	1
16.9900	0	0	122	3	3	192	5	5
16.9902	136	4	0	0	-3	0	0	-2
17.0000	67503	1616	70667	1692	561	75449	1806	998
17.0100	3680	88	4033	97	35	4322	103	59

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 21 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR ALABAMA

PROGRAM CODES	1976 STUDENTS	1976 TEACHERS	1979 STUDENTS	1979 TEACHERS	1979 TEACHERS NEEDED*	1981 STUDENTS	1981 TEACHERS	1981 TEACHERS NEEDED*
17.0200	555	13	628	15	6	613	15	9
17.0301	3363	81	3267	78	22	3481	83	43
17.0302	6277	150	6581	158	52	6951	166	99
17.0399	361	8	44	1	-5	44	1	-3
17.0400	551	13	585	14	5	513	12	6
17.0500	452	11	476	11	4	530	13	7
17.0600	339	8	261	6	1	242	6	2
17.0700	491	12	402	10	1	342	8	2
17.0800	37	1	50	1	1	50	1	1
17.0900	31	1	26	1	0	26	1	0
17.1001	2268	54	2569	62	23	2815	67	40
17.1002	2372	57	2852	68	29	3088	74	46
17.1004	2485	59	2676	64	22	2925	70	40
17.1007	604	14	606	15	4	584	14	7
17.1099	842	20	428	10	-4	448	11	0
17.1100	360	9	349	8	-2	368	9	3
17.1200	960	23	1007	24	8	1105	26	15
17.1300	3416	82	3468	83	26	3608	86	45
17.1400	702	17	714	17	5	794	19	11
17.1500	4593	110	5225	125	48	5666	136	81
17.1600	123	3	65	2	-1	71	2	0
17.1700	3478	83	3710	89	31	4129	99	57
17.1900	560	13	1163	28	18	1206	29	22
17.2000	16	0	0	0	0	0	0	0
17.2100	346	8	354	9	3	391	9	5
17.2302	2248	54	2112	51	13	2283	55	29
17.2303	134	3	146	3	1	160	4	2
17.2305	546	13	432	10	1	458	11	4
17.2306	6015	144	6544	157	56	6687	160	88
17.2307	66	2	140	3	2	148	4	3
17.2399	150	4	159	4	1	177	4	2
17.2601	671	16	743	18	7	792	19	11
17.2602	2462	59	2720	65	24	3041	73	43
17.2699	36	1	0	0	-1	0	0	0
17.2700	18	0	0	0	0	0	0	0
17.2801	443	11	1631	39	32	1814	43	38
17.2802	1487	36	1596	39	13	1765	42	24
17.2899	4098	98	2684	64	-4	3004	71	21
17.2900	1045	25	1313	31	14	1518	36	24
17.3000	384	9	0	0	-6	0	0	-5
17.3100	1511	36	1215	29	4	1273	30	12
17.3200	19	0	0	0	0	0	0	0
17.3300	1285	31	1386	33	12	1491	35	20

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 21 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR ALABAMA

PROGRAM CODES	1976		1979			1981		
	STUDENTS	TEACHERS	STUDENTS	TEACHERS	TEACHERS NEEDED*	STUDENTS	TEACHERS	TEACHERS NEEDED*
17.3400	173	4	180	4	1	197	4	2
17.3500	1337	32	1301	31	8	1414	34	11
17.3600	1222	29	810	19	-1	902	22	6
17.9900	2913	70	4026	96	42	4141	100	48

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 21 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR WASHINGTON, DC

PROGRAM CODES	1976 STUDENTS	1976 TEACHERS	1979 STUDENTS	1979 TEACHERS	1979 TEACHERS NEEDED*	1981 STUDENTS	1981 TEACHERS	1981 TEACHERS NEEDED*
01.0000	54	2	84	3	2	88	3	2
01.0500	54	2	84	3	2	88	3	2
04.0000	603	5	729	6	3	773	6	4
04.0200	28	0	0	0	0	0	0	0
04.0300	8	0	0	0	0	0	0	0
04.0400	21	0	0	0	0	0	0	0
04.0600	27	0	0	0	0	0	0	0
04.0800	441	4	0	0	-3	0	0	-3
04.0900	5	0	0	0	0	0	0	0
04.1000	5	0	0	0	0	0	0	0
04.1100	14	0	54	0	0	54	0	0
04.1200	15	0	0	0	0	0	0	0
04.1500	10	0	0	0	0	0	0	0
04.2000	23	0	0	0	0	0	0	0
04.3100	6	0	0	0	0	0	0	0
04.9900	0	0	675	6	6	702	6	6
07.0000	571	29	437	32	12	444	34	10
07.0101	105	5	49	2	-1	53	3	0
07.0103	30	2	57	3	1	61	3	1
07.0302	291	15	168	9	-2	176	9	-2
07.0303	0	0	11	1	1	11	1	1
07.0399	145	7	0	0	-5	0	0	-4
07.9900	0	0	352	19	18	365	19	19
09.0100	10817	58	5585	30	-11	6429	34	4
09.0101	766	4	1598	9	6	1663	9	7
09.0102	768	4	698	4	1	726	4	2
09.0103	4816	26	1905	10	-8	1983	11	-2
09.0104	306	2	25	1	-1	26	1	-1
09.0106	234	1	0	0	-1	0	0	-1
09.0107	3145	17	1177	6	-5	1942	10	0
09.0108	324	2	182	1	-1	190	1	0
09.0199	458	2	0	0	-2	0	0	-2
09.0200	137	7	413	21	16	462	24	20
09.0201	43	2	124	6	5	130	7	6
09.0202	35	2	203	10	9	240	12	11
09.0203	0	0	79	4	4	79	4	4
09.0204	0	0	13	1	1	13	1	1
09.0299	59	3	0	0	-2	0	0	-2

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 21 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981 ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR WASHINGTON, DC

PROGRAM CODES	1976		1979			1981		
	STUDENTS	TEACHERS	STUDENTS	TEACHERS	TEACHERS NEEDED*	STUDENTS	TEACHERS	TEACHERS NEEDED*
14.0000	1098	28	5254	134	114	5469	139	125
14.0100	105	3	1196	30	29	1245	32	30
14.0201	14	0	0	0	0	0	0	0
14.0203	77	2	0	0	-1	0	0	-1
14.0300	300	8	2361	60	55	2458	63	59
14.0700	279	7	715	18	13	743	19	15
14.0800	521	8	551	14	8	583	14	10
14.9900	0	0	451	12	12	469	12	12
16.0000	18	0	0	0	0	0	0	0
16.0113	18	0	0	0	0	0	0	0
17.0000	4095	66	24777	399	353	24939	400	367
17.0100	10	0	57	1	1	58	1	1
17.0200	20	0	38	1	0	38	1	0
17.0301	43	1	84	1	1	86	1	1
17.0302	122	2	0	0	-1	0	0	-1
17.0399	17	0	164	3	2	170	3	3
17.0600	55	1	35	1	0	35	1	0
17.0700	55	1	37	1	0	41	1	0
17.0900	54	1	0	0	-1	0	0	0
17.1001	102	2	87	1	0	91	1	1
17.1004	50	1	58	1	0	58	1	1
17.1007	22	0	43	1	0	45	1	1
17.1099	15	0	0	0	0	0	0	0
17.1200	32	1	42	1	0	44	1	0
17.1300	54	1	115	2	1	119	2	1
17.1400	95	2	49	1	0	43	1	0
17.1500	111	2	0	0	-1	0	0	-1
17.1900	185	3	0	0	-2	0	0	-1
17.2100	25	0	0	0	0	0	0	0
17.2302	44	1	0	0	0	0	0	0
17.2303	0	0	33	1	1	33	1	1
17.2305	26	0	33	1	0	33	1	0
17.2306	23	0	82	1	1	82	1	1
17.2601	43	1	93	1	1	97	2	1
17.2602	136	2	87	1	0	91	1	0
17.2699	44	1	0	0	0	0	0	0
17.2900	16	0	0	0	0	0	0	0
17.3100	35	1	52	1	0	56	1	0
17.3400	34	1	0	0	0	0	0	0
17.3500	32	1	57	1	1	57	1	1

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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TABLE 21 (continued)

ESTIMATED NUMBER OF STUDENTS AND TEACHERS BY VOCATIONAL EDUCATION PROGRAM FOR FY 1976, FY 1979, AND FY 1981
ASSUMING MEDIUM (10%) ANNUAL TURNOVER RATE FOR WASHINGTON, DC

PROGRAM CODES	1976		1979			1981		
	STUDENTS	TEACHERS	STUDENTS	TEACHERS	TEACHERS NEEDED*	STUDENTS	TEACHERS	TEACHERS NEEDED*
17.9900	2595	42	23560	380	350	23591	380	359

*DENOTES NUMBER OF TEACHERS NEEDED BEYOND THE NUMBER OF TEACHERS IN FY 1976 DUE TO PROJECTED ENROLLMENT AND TEACHER TURNOVER.

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